NORWOOD'S EPITOMIE:
OR THE
APPLICATION
OF
The Doctrine of TRIANGLES in certaine *Problemes*, to the use of the Plaine *Sea-chart*, and *Mercators-chart*.

Being the two Principall and most Usefull kinds of Sayling.

With a Table of Artificiall *Sines*, *Tangents*, and the *Complements* arithmeticall of *Sines* supplying the use of Secants.

To *Radius* 10,00000. and to every degree and minute of the Quadrant.

ALSO,

A *Chiliad*, or the *Logarithmes* of absolute Numbers from a Unite to 1000.

By RICH: NORVVOOD, *Reader of the* Mathematicks.

AN APPENDIX,

Touching the Application of the Doctrine of Triangles, in the two principall kinds of Sayling.

M Y intent was here to have annexed a treatise of Navigation, and especially of such Points therein as have reference to the whole *Doctrine of plaine and sphericall Triangles* ; But I have here shewed the resolution of all usefull Problemes, touching the two principall kinds of Sayling by right lyned Triangles.

Questions of Sayling by the plaine or ordinary Sea-chart.

Although the ground of the Projection of the ordinary Sea-chart being false, (as supposing the Earth and sea to be a plaine Superficies) and so the conclusions thence derived must also for the most part be erronious ; yet because it is most easie and much used, and the erreurs in small distances not so evident, wee will not wholly neglect it.

Quest. 1.

Sayling 100 Leagues upon the sixth Rumbe : how much shall I alter my Parallel or Latitude ?

Note. The angle that any Point of the Compasse makes with the Meridian, we call the Rumbe : but the angle that it makes with any Parallel, we call the complement of the Rumbe.

And forasmuch as to every point of the Compasse there answers 11 deg. 15 min ; therefore the sixth Rumbe from the Meridian (namely E n e, E s e, W s w, or W n w) makes an Angle

A 2   gle

gle therewith of 67 deg. 30 min.
whose complement 22 deg. 30
min. is the angle of the same
rumbe with every parallel.

Now admit I saile from D to
A, east northeast 100 leagues ; I
demand the difference of latitude
D B.
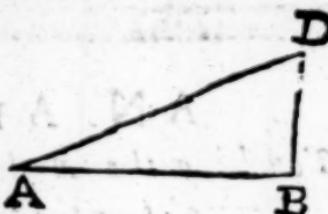
By the third case of plaine Triangles.

As Radius
To the distance runne,   A D 100 leagues   2,00000
So sine complem. the rumbe, s A 22 deg. 30 min.   9,58284
To the difference of latitude, D B 38$\frac{2}{10}$ leagues   1,58284

In like manner you may find the difference of latitude, for
any distance runne upon any other point of the Compasse.

2. *Sayling 100 leagues upon the sixth Rumbe : how
farre am I departed from the Meridian of the place
from which I came.*

That is, By the same things given as before, I demand A B.
By the third case of plaine triangles.
As Radius
To the distance runne,   A D 100 leagues   2,00000
So is the sine of the rumbe,   s D 67 deg. 30 min.   9,96562
To the departure from the merid. A B 92$\frac{4}{10}$ leagues, 1,96562

3. *Sayling upon the sixth Rumbe, till I alter my Lati-
tude one degree, I demand how farre I have fai-
led?*

As failing from D to A, east northeast, till the difference of
latitude D B be 20 leagues ; I demand the distance runne
A D.

Say by the second case of plaine triangles.

As sine complem. the rumbe, s A 22 deg. 30 m. co. ar. 0,41716
To the differenec of latitude D B 20 leagues ;   1,30103
So is Radius
To the distance runne   A D 52 ⅔ leagues,   1,71819

The like question might be moved by the departure from the meridian given.

4. *Sayling upon the sixth Rumbe, till I have altered my Latitude one degree : how much am I departed from my first Meridian ?*

As sayling from D to A, east northeast, till the difference of latitude D B be 20 leagues ; I demand A B, my departure from the meridian, (as for Examplein the former type.)

By the first case of plaine triangles.

As Radius
To the difference of latitude, D B 20 leagues,   1,30103
So is the tangent of the rumbe, t D 67 deg. 30 min. 10,38278
To the departure from the merid. A B 48 ⅔ leag. 1,68381

In like manner by the departure from the meridian given, you might find the difference of latitude.

5. *Sayling upon some Rumbe, betweene the North and the East 52 ⅔ leagues ; and finding that I have altered my Latitude one degree : I demand upon what Point I have sayled ?*

As if I sayle from D to A, (being some rumbe betweene the east and north) 52 ⅔ leagues ; and then find the difference of latitude D B, to be 20 leagues ; I demand the angle A D B.

Say by the sixth case.

As the distance runne, D A 52 ⅔ leagues, co. ar. 8,28192
Is to Radius ;

So is the difference of latitude **D B**, 20 leagues,   1,30103
To fine complem. the Rumbe, *s* A, 22 deg. 30 min. 9,58294

Whose complement D, 67 deg. 30 min. is the sixth Point from the Meridian, namely east northeast. Here we neglect some part of a minute (as in these things not to be regarded) and so in other places.

6. *Sayling upon some Rumbe betweene the North and the East* 52½ *leagues ; and finding that I have altered my Latitude one degree : I would know my departure from my first Meridian?*

By the seaventh case.

To the distance runne, adde the difference of Latitude, and also subtract it from the same, noting the Summe and Remainer. Then adde together the Logarithmes of this summe and remainer, and halfe that totall is the Logarithme of the Distance from the first Meridian.

Distance run D A,52⅘ leag. } Summe 72⅘ leag.1,85884
Differ.of latit.D B,20 leagues } Remain.32⅘ leag.1,50853

                                    3,36737

Departure from the Meridian A B, 48⅘ leagues. 1,68368
The same may be otherwise found by the same case.

And in like sort might the difference of Latitude be found, the departure from the Meridian being knowne.

7. *The distance of the Meridians of two Places, and the difference of the Latitudes of the same places being given : To find the Rumbe and distance?*

As let A represent the Lizard in the west part of England, and A B the Parallel thereof , and let D represent St *Maries* Iland being one of the Azores, **D B**, the Meridian thereof.
                                                        Then

Then is **A B**, the diftance of the Lizard from the Meridian of St. *Maries*, which let be 272 leagues; and A B, the diftance of their paralells, or difference of their latitudes 256 leagues. I demand the rumbe, namely the Angle at D, and the diftance in the rumbe A D.
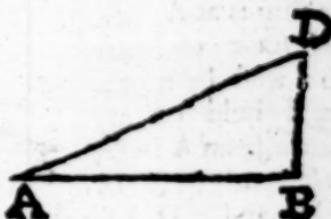
Firſt for the rumbe, ſay by the fourth caſe.

As the difference of latitude **D B** 256 leagues,co. ar. 7,59176
Is in proportion to Radius :
So is the diftance of the meridian A B, 272 leagues, 2,43457

To the tangent of the rumbe *t* D, 46 deg. 44 min.   10,02633

Which is the fourth Rumbe from the meridian, and 1 deg. 44 min. more ; which fhewes the courſe from S.*Maries* to the Lizard, to be northeaſt, 1 deg. 44 min. eaſterly : or from the Lizard to S. *Maries* ſouthweſt, 1 deg. 44 mm. Weſterly. And thus it ſhould be by the plaine Chart.

2ly, For the diſtance **A D** ; *ſay by the* 2 *caſe.*

As the ſine of the rumbe, s D 46 deg. 44 min. co: ar: 0,13776
To the diftance of the meridians A B, 272 leagues,   2,43457
So is Radius
To the diftance of the places A D, 373½ leagues,   2,5733

And ſuch ſhould be the diftance by the plaine Chart.

8. *Sayling away* W S W, *I ſee a point of Land, which I ſet, and find to beare from me Weſt by North, and having ſayled ſixe leagues further, I find it beares from me Northweſt by weſt : I would know how farre it is diſtant ?*

As let E be a point
of land, which when
the ship is at **A**, I set
and finde to beare
from weft by north,
but I hold on my
courfe from A to D,
weft fonth-weft 18
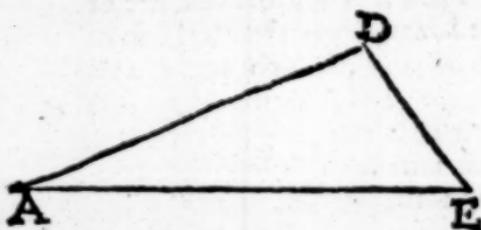
miles, and at D, I fet the fame Point of land againe, and find
it to beare from me northweft by weft : I demand the diftance
thereof D E, that is, how farre it was from me in my laft ob-
fervation.

Firft, I confider betweene **A** E, the weft by north, and A D
the weft fouth-weft, is three Points of the Compaffe, that is, 33
deg. 45 min. which is the angle at A : alfo betweene E A, the
eaft by fouth, and E D, the fouth-eaft by eaft are two points,
that is 22 deg. 30 min.

Therefore, by the 8 *cafe of plaine triangles*.

As fine the angle at ꝥ Point feene, ſ E 22 d. 30″. co.ar. 0,4176
Is to the diftance runne ;   A D 18 miles,   1,25527
So fine the angle at the firft ⎰ ſ A 33 deg. 45 min. 9,74474
  place of obfervation,   ⎱
To the diftance of the point feene, E D 26 ⅒ miles, 1,41717

Whereby it appeares, that the diftance of the Point feene
from the place of your laft obfervation is 26 miles, and a Fur-
long In like manner you may find the diftance thereof from
the place of your firft obfervation A.

Admit the courfe from the Lizard *to S.* Maries *be*
s w, *the diftance* 37 3½ *leagues. A certaine fhip bound*
from the Lizard *to S.* Maries *fteeres away* s s w, *and*
afterwards w b y s, *and fo fometimes upon one of thefe*
Points, fometimes upon the other, till fhe arrives at St.
Maries ; *now I demand how many leagues fhe hath fay-*
led upon one of thefe Points, *and how many upon the*
other.   Let

Let **A** be the Lizard, E St. Maries, and feeing *S s w*, being from fouth-weft two Points, makes an angle therewith of 22 deg. 30 min. which let be **A** ; alfo weft by fouth makes with *s w* an angle of 33 deg. 45 min. which let be E ; alfo fouth *s w*, makes with weft by fouth an angle of 56 deg. 15 min. which let be the complement of D to 180 degrees.

Therefore by the S cafe,

As the fine of   D, 56 deg. 15 min. *comp. ar.*   0,08015
To the diftance given A E, 373 ½ leagues.   2,57113
So is the fine of   E, 33 deg. 45 min.   9,74474
To   A D, 248 ⁹⁄₁₀ leagues.   2,39662

Which is the diftance run upon the fouth fouth-weft Point.

Againe,

As the fine of   D, 56 deg. 15 min. *co. ar.* 0,08015
To the diftance given A E, 373 ½ leagues.   2,57113
So is the fine of   A, 22 deg. 30 min.   9,58284
To the way runne   E D, 171 ⁷⁄₁₀ leagues,   2,23412

Which is the diftance runne upon the weft by fouth Points.

10. *A Marchant man, being in the Latitude of* 43 *degrees, falls into the hands of Pyrats; who amongft other things take away his Sea-compaffe. But when he is gotten cleare, hee fayles away as dire{tly as he can, and after two dayes meets with a man of War; who alfo had bin the day before in the Latitude of* 43 *deg. and had fayled thence* s e by s, 37. *leagues : He defirous to find thofe Pyrats, the Marchant-man tells him, he left them lying too and fro where they tooke him, and hee had fayled fince at leaft* 64 *leagues, betweene the fouth and weft : what courfe fhall the man of Warre fhape to find thefe Pyrats?*

Let

Let A E be the
Parallel of 43 deg.
D the place where
the ſhips meet. Then
is there given A D
64 leagues, E D 37
leagues, and the an-
gle D E A five points
or 56 deg. 15 min.
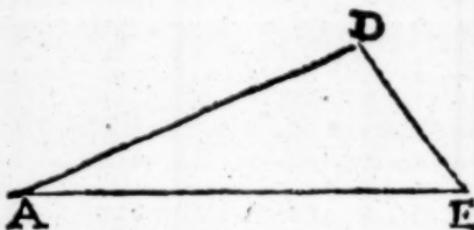
Therefore,by the 9 caſe of plaine Triangles.

As the diſtance runne by ⎱ A D, 64 leagues, co. ar. 8,19382
the Merchant man, ⎰

To fine the angle given,   s E, 56 deg. 15 min.   9,91985

So is the diſtance runne ⎱ E D, 37 leagues.   1,56320
by the man of Warre ⎰   ─────────

To fine an angle required, s A, 28 deg. 44 min.   9,68187

That is weſt ſouthweſt, 6 deg. 14 min. ſoutherly, and ſo
hath the Merchant ſayled ; therefore to returne to the ſame
place, he muſt ſhape his courſe eaſt northeaſt, 6 deg. 14 min.
northerly.

11. *There are two Ports lying* N E, *and* S W, *one off
another, a Ship ſayles from the weſtermoſt of theſe
Ports Eaſt ſoutheaſt 47 leagues, another departing
from the Eaſtermoſt port ſayles 66 leagues, and
then meets with the former ; what courſe hath this
ſecond Ship kept, and how farre are theſe Ports a
ſunder ?*

Let the northeaſt Port be A, the ſouthweſt E, and the place
where theſe Ships meet at D. And foraſmuch as from E to A,
the courſe is northeaſt, and from E to D eaſt ſoutheaſt ; there-
fore the angle at E, is 67 deg. 30 min. and the ſide E D, 47
leagues, and A D 66 leagues.

There-

Therefore by the 9 case of plaine Triangles.

As A D, 66 leagues, *co. ar.* 8,18046   And seeing from **A** to
To sine E, 67 deg. 30 min. 9,96561   E, the course is south-
So   E D, 47 leagues,   1,67210   west, and from **A** to D,
To sine A, 41 deg. 08 min. 9,81817   41 d. 08 m. more sou-
     course from A to D, is South 3 deg. 52 min.   therly : therefore the Westerly.

Secondly, for the distance of these Ports A E, the angle at A, being 41 deg. 08 min. and the angle at E, 67 deg. 30 min. the Summe of them both is 108 deg. 38 min. which subtracted from 180 deg. leaves the angle at D, 71 deg. 22 min.

Therefore by the 8 case of plaine Triangles.

As sine E, 67 deg. 30 min. *co. ar.* 0,03439   So that the di-
To A D, 66 leagues,   1,81954   stance betweene
To sine D, 71 deg. 22 min.   9,97662   the two Ports is
To   A E, 67 $\frac{7}{8}$ leagues,   1,83055   67 $\frac{7}{8}$ leagues.

Some may thinke it requisite, that the later part of this Probleme should have beene a distinct case in plaine Triangles ; but because the same things are here given as in the 9 Case, and the operation manifest by the Eight and Nine , I thought it not necessary to make another Case of it.

12. *Coasting along towards the evening, I have sight of a Cape or Headland, beyond which I desire to steere in the next morning it beares from me S S e, and is distant by estimation 11 leagues ; but I steere away South, till two of the clocke in the morning, about 12 leagues ; and then would know how the Cape beares from me, and how farre it is off?*

As admit A, I observe the Cape D, to beare from me south southeast 11 leagues ; but I steere away south, to E 12 leagues. I have then A D 11 leagues, A E 12 leagues, the angle at A 22 deg. 30 min. (As for example in the fore-going type.

First

First then for the angle at E, *by the* 10 *cafe.*

As A E ➕ A D, 23 leagues,   co : ar :   8,63828
T-5 A E ➖ A D, or league ;
So t $\frac{1}{2}$ (E ➕ D) t 78 deg. 45 min.   10,70134
To tang : an angle F, 12 deg. 20 min.   9,33962
Which fubtracted } E, 66 deg. 25 min.
there remaines }

In working this example, becaufe the angle given A, is 22
deg. 30 min. therefore the other two E and D, are 157 deg 30
min. (by the firft Lemma of the third chapter of plaine Trian-
gles) the halfe whereof is 78 deg. 45 min. Whereby wee find
an angle F, 12 deg 20 min. which fubtracted from 78 deg. 45
min. there remaines the angle at E, 66 deg. 25 min. Where-
fore feeing E A is a north line, E D is almoft eaft north-eaft,
namely eaft north-eaft 1 deg. 5 min. northerly.

2. *ly, for the diftance of the cape* E D, *by the* 8 *cafe.*

As fine the angle found,   s E, 66 d. 25 m. co. ar. 0,03788
To the diftance in the evening, A D, 11 leagues :   1,04139
So the fine of the angle given, s A, 22 deg. 30 min. 9,58484
To the diftance in the morning, E D, 4r̃ leagues, 0,66211

That is above 4 leagues and a halfe diftant.

13. *Admit I fayle away from a certaine Port* S S W.
  50 *leagues, and thence againe* W *by* S, 30 *leagues ;
  upon what Point have I made my way good, and
  how farre am I come from a Port ?*

As admit I fayle from A to D fouth fouth-weft 50 leagues,
and from D to E, weft by fouth 30 leagues, there is required
the courfe A, or E, and diftance A E.

From the fouth fouth-weft to the weft by fouth, are 5 points,
that is 56 deg. 15 min. which is the complement of the angle
at D, to 180 deg. So that the angle at D, is 123 deg. 45 min.
Wherefore here are given the two fides A D, and E D, and
their contained angle at D ; Therefore   ▬

As

As   A D ✛ E D, 80 leagues,   *co : ar :*   8,09691
To   A D — E D, 20 leagues,   1,30103
So t ½ (A ✝ E) t 28 deg. 08 min.   9,72810
To   t F, 07 deg. 37 min.   9,12604

Which fubtracted ⎱ A 20 deg. 31 min.
  there remaines ⎰

Wherefore feeing the courfe from A to D, is fouth fouth-weft,
the courfe from A to E, is 20 deg. 31 min. more wefterly, that
is, fouth-weft 2 deg. foutherly ; fo that I have made my way
good fouth-weft two deg. foutherly.

Secondly, for the diftance vpon that Point.

As fine the angle found,   s A, 20 d. 31 min. *co : ar :* 0,45534
To his oppofite fide given, E D, 30 leagues,   1,47712
So fine the angle given,   s D, 56 deg. 15 min.   9,91985
To his oppofite fide required, A E, 71 ⅖ leagues,   1,85231
  Which is the diftance from that Port.

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14. *There are two Ports in one and the fame Parallel*
or Latitude, diftant 64 leagues, and there is a cer-
taine Iland more Southerly, diftant from the Ea-
stermoft of thefe Ports 47 leagues, and from the
Weftermoft of them 34 leagues : I demand the
courfe from the Eaftermoft port to that Iland?

Let the Eafter-
moft port be A, the
weftermoft E, both
in one and the fame
parallel A E, diftant
64 leagues ; and let
the Iland be D, di-
ftant from A, 47
leagues, and from E 34 leagues ; there is required, the courfe
from A to D, that is, the angle at A, or the complement
thereof.

B   *B 3*
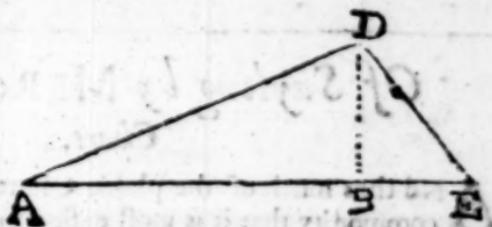
By the 12 case of plaine Triangles.

As the distance of the ports A E, 64 leagues. co.ar. 8,19382
To the summe of A D, and E D, 81 leagues, 1,90848
So is the difference of A D & E D, 13 leagues, 1,11394

To a certaine line   A, 16 $\frac{454}{1000}$ 1,21624

Which added to A E, is   80 $\frac{454}{1000}$

The halfe whereof is   A B, 40 $\frac{227}{1000}$

Then by the 6 case of plaine Triangles.

As A D 47 leagues,   *compl. arith.*   8,32790
To Radius;
So A B, 40 $\frac{227}{1000}$ 1,60452
To sc A, s 58 deg. 51 min.   9,93242

That is southwest and by west 2 deg. 36 min. westerly, which is the course from the Eastermost port to the Iland.

15. *A Ship sailes from one Port to a second* S S E, 76 *leagues, and from thence to a third* 54 *leagues, and from that third to the fir* 85 *leagues : I demand the Course from the second Port to the third, and from the third to the first ?*

This and the like are to be wrought as the former, which therefore we leave to your owne Practice.

Of Sayling by MERCATORS-Chart.

ANd thus much of the plaine Chart, which as it hath this commodity that it is most easie ; so it hath some discomodity intollerable . For there be very few Places that can therein be expressed according to their true Scituation and distance one from another. Which as it is a great impediment in the practice of Navigation ; so it hath caused much confusion,

on, in the *Geographicall* and *Hydrographicall* defcriptions of Places ; infomuch as there are fcarce extant any Defcriptions of the World or the parts thereof, that are not peftered with notorious Errours : the greateft part of them arifing. It is indeed ancient, and till the Sea-Compaffe was knowne, it was the apteft Chart that could be ufed ; becaufe till then, men were Coafters, and for the moft part returned backe the fame way they went forth, and it may ftill ferve without any great Errour in fuch places as are neere the Equinoctiall, alfo in many other places for fhott Voyages, and even for long voyages, provided that a man be fure to returne the fame way that he went, or neere the fame. Otherwife, if he truft to the plaine Chart, hee will be moft groffely deceived many times in his courfe a Point or two of the Compaffe, and in his Diftance many hundred miles. But in this Sea-chart called *Mercators*, all or any parts of the World may be fet downe, according to their Longitudes, Latitudes, Courfes and Diftances, as truly and farre more conveniently for the Mariners ufe then upon the Globe it felfe : So that it will truely fhew the direction and Diftance from place to place, which way foever a man goes or returnes.

Some men will fay, that in divers reckonings by *Mercators* Chart, they have found as little certainty as by the Plaine Chart. Which I deny not, but the reafon is, becaufe there are few or no Charts made directly according to this Projection. It will be faid, yes, there are many ; and that a man may have of them whenfoever hee will befpeake them. I grant a man may have thofe which are fo called, but that which is fuch indeed, muft not only have the Meridians, Parallels, and Rumbs drawne according to this Projection ; but the Sea-coafts muft be inferted by the like Art and meanes, as they have formerly beene inferted into the common Sea-chart : otherwife he that fhall transferre places out of the common Sea-chart into *Mercators*, without due knowledge and refpect upon what occafion or for what reafon they were fo placed in the Common Sea-chart ; hee fhall transferre the errours of the one into the other, and that fometimes with increafo. Wherefore it requires

more

more than an ordinary judgement, to draw a Plot directly according to this Projection, for any Place or places; and hee must further know, or be made acquainted with the reckonings of Mariners frequenting those places; and that truly whether with allowance or without, and whether agreeing or disagreeing with their Plots, and so comparing one thing with another, and weighing all in the ballance of a good judgement, he shall be able to doe it. The ground of the Projection of this kinde of Charts was pointed at by *Ptolomey*, many hundred yeares since; and according to that ground, *Mercator* did of late yeares set forth an universall Map of the World, whereupon these have bin called *Mercators Charts*. But the way how to describe them was first taught by that learned Navigatour of our Times Mr. EDVVARD WRIGHT, in his Booke of the *Correction of Errours in Navigation*. From whence also the ground and reasons of these ensuing Problemes are to bee taken: and if wee would be as gratefull to our owne Countrimen as to Strangers, I see not but we may ascribe as much to him in this as to any other man. Now that which hee hath shewed to performe by the Chart it selfe, we will here shew to worke by the Doctrine of plaine Triangles, using the helpe of the Table of *Logarithme Tangents*, beginning at 45 degrees 00 minutes, and so increasing upwards, accounting every 30 min. to be one Degree of the Meridian line, as the Tangent of 45 deg. 30 min. to be one degree of the Meridian line, and the Tangent of 46 deg. 00 min. to be two Degrees 00 min. of the Meridian line, and so forwards; so that every Minute is two minutes of the Meridian line, and although that these be not the same Meridionall parts that are in the Doctrine of Triangles, yet they proceed in the same proportion as the *Secants* added together doe, and shall produce the same solution to every Probleme of Sayling by *Mercators*-Chart, as $\frac{y}{y}$ other Tables doe; but because in this small volume wee have but one *Chiliad* of 1000 Logarithmes, I shall worke by Leagues and not by Miles, or Minutes; Yet I shall resolve the same Problemes of Sayling by *Mercators*-Chart, that are set downe in the Doctrine of Triangles.

To

Prob. 1. *To find by these Tables what Meridionall Leagues are contained in any difference of Latitude.*

TO performe this Probleme wee must take halfe of each of the given Latitudes, and to each halfe adde 45 degrees 00.min. and the Sunne shall shew us the Degrees and Minuts, where we shall find the Tangent to give us the Meridionall leagues from the Equinoctiall to each Latitude, but it shall suffice us to subtract the lesser Tangent out of the greater, and to multiply the Difference or remainer by 10, and to divide what Product by 376. and the quotient shall be the Meridionall leagues, contained betweene the two Latitudes.

As let one Latitude be 50 deg.00 min. the other 32 deg.35 min. The halfe of 50 deg.00 min. is 25 deg.00 min. to which adde 45 deg.00 min. the Sum is 70 d. 00 m. which are 43893.

The halfe of 32 deg. 35. min. is 16 deg. 17 min. and a halfe, to which adde 45 deg.00 min. the Summe is 61 deg.17 min. ½, where we must looke the equall parts, *viz.* at the Tangent of 61 deg. 17 min. and a half, which are 26147. Which subtract from 43893. and the remainer is 17746, which multiplied by 10, is 177460. and that divided by 376. the quotient is 472 Leagues neerest, which are the Meridionall leagues contained betweene the two Latitudes, and the like is to be done for all Latitudes whatsoever.

Now although this way doth a little differ, from that way done by Meridionall parts; yet the Difference is of no validity to breed any considerable errour in the Course, and so by consequence not in the Distance; and therefore I desire a favourable construction of it.

Prob. 2. *The Latitudes and difference of Longitude of two Places given: to find the Rumbe and distance.*

TO the intent the application may be the more evident, wee will give Examples of two Places expressed in the Chart. As admit the latitude of the Lizard to be 50 deg.00 min, the latitude of Summer-Ilands, sometimes called the *Bermudas,* 32

deg.

deg. 25 min. and the difference of Longitude to be 70 deg. 00 min. the Summer-Ilands being so much to the westward of the Lizard : I demand the Course, and the distance from the one to the other ?

As in this right angled Triangle A D B. Let A represent the Lizard, and A B the Parallel thereof, D Summer-Ilands, and D B the Meridian thereof.

Then is there given D B, the difference of latitude 17 d. 35 m. and A B the difference of Longitude 70 d. 00 m. whereby the angles and Hypothenusall should be found by the fourth and second Cases of plaine Triangles. But because in this kind of Projection, the degrees of Longitude and Latitude are not equall ; (except in places neare the Equinoctiall) the degrees of latitude at every Parallel, exceeding the deg. of longitude, in such proportion as the Equinoctiall exceeds that Parallel ; therefore these differences of longitude and latitude, must first be expressed by some one common measure. And for that purpose serves the table of Tangents, which sheweth how many equall leagues are from the Equinoctiall to every degree of latitude : namely of such equall leagues as a degree of longitude doth containe 20.

Wherefore multiplying 70 deg. 00 min. the difference of longitude by 20, I have 1400 for the Meridionall leagues contained in the difference of longitude ; also (by the last Probleme) I find the Meridionall leagues contained in the difference of latitude to be 472, so that D B is 472 leagues, and A B 1400 such leagues.

Therefore by the 4 case of plaine Triangles.

As the differ. of latit. in leagues D B 472. co. arith. 732606

Is in proportion to Radius :

So is the differ : of longitude in leagues A B 1400,   314612

To the tangent of the rumbe, t D 71 deg 22 min.   ,47218

Which sheweth the course from the Summer-Ilands to the Lizard, to be east northeast 3 deg. 52 min. easterly ; or, from the Lizard to the Summer-Ilands, W S W, 3 deg. 52 min. westerly.

Second-
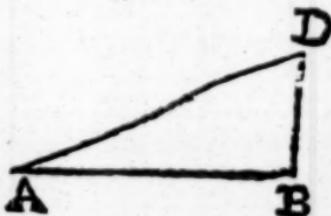
Secondly, for the diſtance in the Rumbe.

Reduce the difference of latitude into leagues (multiplying the degrees by 20,) and to the Product adding one third of the minutes.

Then by the 2 caſe of plaine Triangles.

As fine compl : the rumbe, s A, 18 deg. 39 min. co. ar.   049514
To the difference of latitude D B, 352 leagues,   254654
To the diſtance   A D, 1100 leagues,   304168

And this is the diſtance meaſured in the Rumbe ; there is a nearer cut betweene theſe two Places, whereof we ſhall ſpeake hereafter in *Great Circle ſayling* ; which is by Segments of ſeverall Rumbes often changing the courſe, but here whenſoever we ſpeake of the Diſtance of two Places, we meane their diſtance meaſured in one Rumbe.

Prob. 3. *The Latitudes of two Places, and their Diſtance given : to find the Rumbe, and difference of Longitude.*

ADmit I ſayle from the Lizard, being in the latitude of 50 degrees, upon ſome Point to the weſtward 1100 leagues, and then find my ſelfe in the latitude of 32 deg. 25 min : I would know upon what Point I have made my way good? and how much I have altered my Longitude ?

The difference of latitude D B, is 17 deg. 35 min. which reduced into leagues, is 352 leagues. (As in the foregoing type.)

As the diſtance ſayled A D, 1100 leagues, co ar.   695832
Is in proportion to Radius :
So is the difference of latitude D B, 352 leagues,   254654
To fine complement the rumbe, s A, 18 deg. 39 min.   9,50456

That is weſt ſouthweſt 3 deg. 51 min. Weſterly.

Secondly, for the difference of Longitude.

Find by the firſt Probleme what Meridionall leagues are contained in the difference of Latitude, which are here 472, then ſay ;

B 2   As

As Radius

To the difference of latitude in leagues, D B 472,   267394
So is the tangent of the rumbe, *e* D, 71 deg. 21 min.   47218

To the difference of longitude in leagues, A B 1400. 314612

Which leagues reduced into degrees, dividing them by 20, the quotient is 70 deg, the difference of longitude required.

Prob. 4. *By the Rumbe, and Latitudes of two Places given : to find their distance, and difference of Longitude.*

ADmit I fayle from the Lizard , being in the Latitude of 50 deg. west southwest 3 deg. 51 min. westerly, till I find my selfe in the latitude of 32 deg. 25 min : I demand how farre I have fayled, and how much I have altered my Longitude ?

The distance is found as in the latter part of the second Probleme thus. The difference of Latitude converted into leagues is 352. Say then,

As sine complem : the rumbe, *s* A 18 deg. 39 min. 0,49514
To the difference of latitude D B, 352 leagues,   254654
So is Radius,
To the distance   A D, 1100 leagues,   304168

And so much is the distance : The difference of Longitude may be found as in the later part of the 3 . Probleme ; saying,

As Radius, to the difference of Latitude in Meridionall leagues, so is the tangent of the Rumbe, to the difference of Longitude in leagues.

Prob. 5. *By the difference of Longitude, Rumbe, and one Latitude : to find the other Latitude and the distance ?*

ADmit I fayle from the Lizard, being in the latitude of 50 deg. west southwest 3 deg. Westerly, till I have altered my longitude 70 deg : how much have I laid the Pole, and how farre am I from the Lizard ?

                                                    Reduce

Reduce the difference of Longitude into leagues by 20, and
so it makes 1400 ; Then say,

As the tangent of the rumbe, t D,71 d.21 m. *co. ar.* 9,52829
To the difference of longitude in leagues, A B, 1400. 3 14612
So is Radius,
To the difference of latitude in leagues, D B 472. 267441

Which 472 leagues multiplied by 376, and the Product
177472, and that Divide by 10, and the quotient is 17747.
Which I subtract from the equall parts of the Latitude of 50
deg. 00 min. which we found by the first Probleme to be at the
tangent of 70 deg. 00 min *viz* 43893, and the Remainer is
26146, which I seeke in the Tangents and find it at the tan-
gent of 61 deg. 17 min. and a halfe, from which I subtract 45
deg. 00 min. and the remainer is 16 deg. 17 min. and a halfe,
which being doubled is 32 deg. 35 min. The latitude of the
Place to which I am to come.

Secondly for the Distance.

Having already the Rumbe, and difference of Latitude, it
may be found as in the second and fourth Problemes : saying,

As sine compl : the rumbe, s A 18 d. 39 m. *co. ar.* 0,49514
To the difference of latitude, D B 352 leagues, 254654
So is the Radius,
To the distance, A D 1100 leagues, 304168

Prob. 6. *By the Rumbe, the Distance, and one Lati-*
tude given : to find the other Latitude, and the dif-
ference of Longitude ?

ADmit I sayle West southwest 3 deg. 51 min. westerly, 1100
leagues ; and then find my selfe in the Latitude of 32 deg.
35 min : I demand the Latitude of the place from which I
came, and the difference of Longitude betweene that and
this ?

B 3 *First*

First, for the Difference of Latitude.

As Radius

To the distance runne, A D 1100 leagues,		304168
So sine compl: the rumbe, s A, 18 deg. 39 min.		950486
To the difference of latitude, D B, 352 leagues,		254654

Which 352 leagues converted into degrees, is 17 deg. 35 min. the difference of Latitude required : which added to 32 deg. 25 min. makes 50 deg. 00 min. the Latitude of the first Place.

The difference of Longitude is found as before in the third Probleme : saying,

As Radius, to the differ: in latitude in Meridionall leagues, so is the tangent of the rumbe, to the difference of longitude in leagues.

And thus the difference of longitude will be found as in this example to be 70 deg. 00 min.

If at any time you desire to convert this difference of longitude found in any Parallel into leagues, you may doe it after this Example.

7. *Admit there be two Places both in the Parallel of 50 degrees : which differ in Longitude 70 deg. 00 min : I demand the Distance of these two Places?*

First , it is to be understood that the Leagues of longitude in any Parallel, are not in proportion to the distance in Leagues, as the Equinoctiall, is to that parallel ; or as the semidiameter of the one , is to the semidiameter of the other. That is,

As Radius is in proportion,

To sine compl. the latitude,	s s 50 deg. 00 min,	980807
So is the difference of longitude;	1400 leagues,	314612
To the distance in that parallel.	900 leagues,	295419

A

A Table of the Angles that every Rumbe or Point
of the Compaſſe, and every quarter of a Point maketh
with the Meridian; that is, how many Degrees and Mi-
nutes are contained in every Point, half-point, and quar-
ter-point of one fourth part of the Compaſſe.

North	South	D.	M.	South	North	
		2	49			
		5	38			
		8	26			
N by E	S by E	11	15	S by W	N by W	1
		14	04			
		16	53			
		19	41			
N N E	S S E	22	30	S S W	N N W	2
		25	19			
		28	8			
		30	56			
N E by N	S E by S	33	45	S W by S	NW by N	3
		36	34			
		39	23			
		42	11			
N E	S E	45	00	S W	N W	4
		47	49			
		50	37			
		53	26			
N E by E	S E by E	56	15	S W by W	NW by W	5
		59	4			
		61	52			
		64	41			
E N E.	E S E	67	30	W S W	W N W	6
		70	19			
		73	7			
		75	56			
E by N.	E by S	78	45	W by S	W by N	7
		81	34			
		84	22			
		87	11			
Eaſt.	Eaſt.	90	00	Weſt.	Weſt.	8

A

TRIANGVLAR

CANON

LOGARITHMICALL.

OR,

A Table of Artificiall *Sines*, *Tangents*, and the *Complements* Arithmeticall of *Sines* supplying the use of *Secants*.

To *Radius* 10,00000. and to every Degree and Minute of the Quadrant.

❧❧❧❧❧
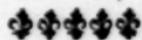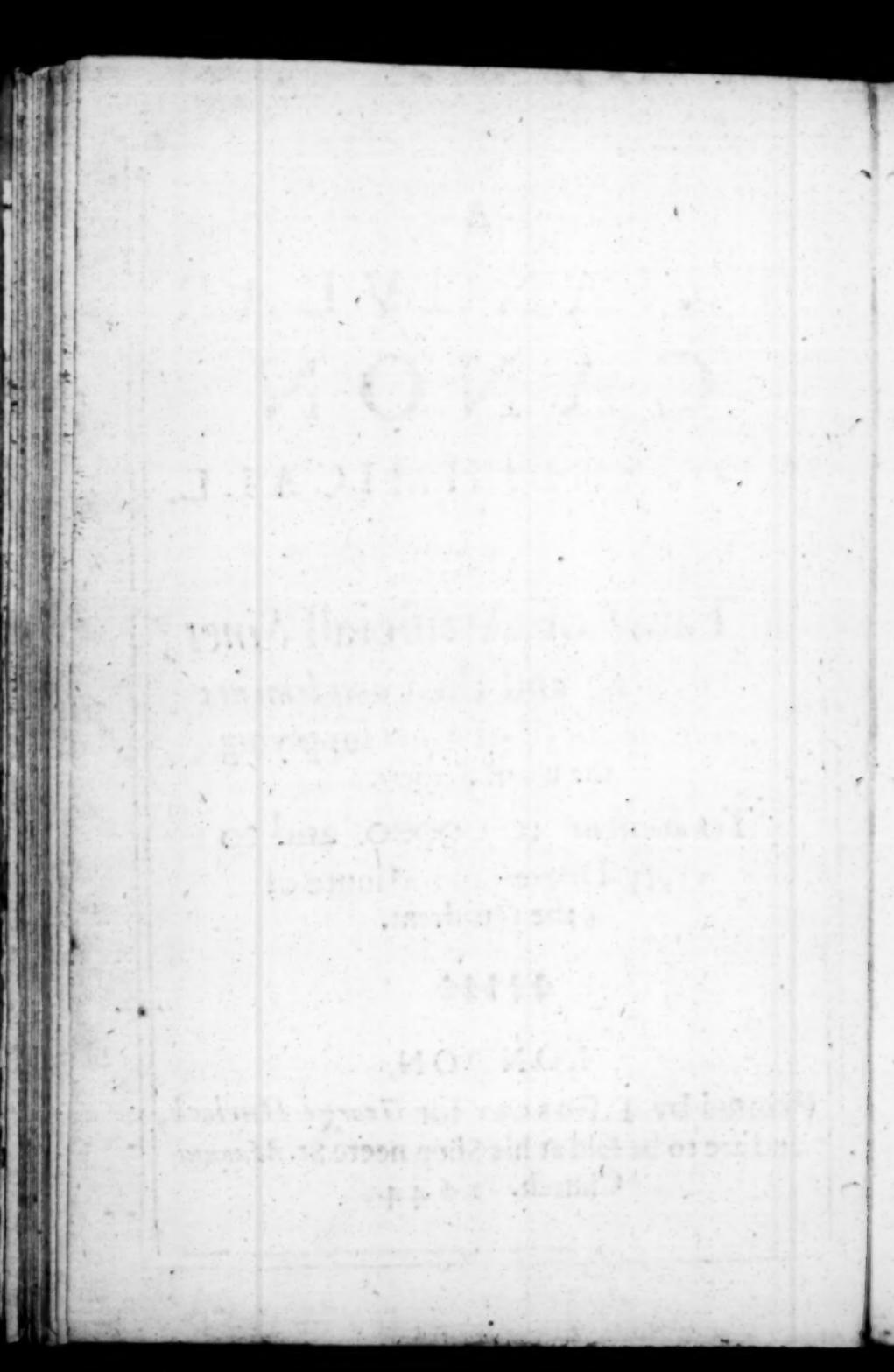
To the Reader.

His Table of Artificiall *Sines*, *Tangents*, and *Arithmeticall Complements* of *Sines* to supply the use of *Secants*, with a *Chilliad* of one Thousand *Logarithmes* is thought fit (by Mr. *Richard Norwood*, and *Henry Bond*,) to be Printed to the *Radius* 10,00000. that such as are desirous thereof may have it at a more reasonable rate, then the other larger *Tables* are at ; and because it is in a more portable volume, and is of the same use that the other Tables are ; For by these Tables may be resolved all plaine and Sphericall *Triangles* and all *Problemes* of Sayling. either according to the plaine *Sea-chart*, or according to *Mercators chart* (without any other Meridionall parts then what are contained in these *Tables*) as it may partly appeare, if you looke in the latter end of the *Appendix* of the *Path-way to perfect Sayling*, now newly printed, *Vale*.

O	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith. of Sine	Compl. arith. of Si.Com
0		1000000	0	Infinite	60	1000000	0
1	646372	999999	646372	353627	59	353627	0
2	676475	999999	676475	323524	58	323524	0
3	694084	999999	694084	305915	57	305915	0
4	706578	999999	706578	293421	56	293421	0
5	716269	999999	716269	283730	55	283730	0
6	724187	999999	724187	275812	54	275812	0
7	730882	999999	730882	269117	53	269117	0
8	736681	999999	736681	263318	52	263318	0
9	741796	999999	741796	258203	51	258203	0
10	746372	999999	746372	253627	50	253627	0
11	750511	999999	750512	249487	49	249488	0
12	754290	999999	754290	245709	48	245709	0
13	757766	999999	757767	242232	47	242233	0
14	760985	999999	760985	239014	46	239014	0
15	763981	999999	763982	236017	45	236018	0
16	766784	999999	766784	233215	44	233215	0
17	769417	999999	769417	230582	43	230582	0
18	771899	999999	771900	228099	42	228100	0
19	774247	999999	774248	225751	41	225752	0
20	776475	999999	776476	223523	40	223524	0
21	778594	999999	778595	221404	39	221405	0
22	780614	999999	780615	219384	38	219385	0
23	782545	999999	782546	217453	37	217454	0
24	784393	999998	784394	215605	36	215606	1
25	786166	999998	786167	213832	35	213833	1
26	787869	999998	787870	212129	34	212130	1
27	789508	999998	789509	210490	33	210491	1
28	791087	999998	791089	208910	32	208912	1
29	792611	999998	792613	207386	31	207388	1
30	794084	999998	694085	205916	30	205915	1

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 89 | | |

O	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith of Sine	Compl. arith of Si.com
30	794584	999998	794085	205914	30	205915	1
31	795508	999998	795509	204490	29	204491	1
32	796886	999998	796888	203111	28	203113	1
33	798223	999998	798225	201774	27	201776	1
34	799519	999997	799521	200478	26	200480	2
35	800778	999997	800780	199219	25	199221	2
36	802002	999997	802004	197995	24	197997	2
37	803191	999997	803194	196805	23	196808	2
38	804350	999997	804352	195647	22	195649	2
39	805478	999997	805480	194519	21	194521	2
40	806577	999997	806580	193419	20	193422	2
41	807649	999996	807653	192346	19	192350	3
42	808696	999996	808699	191300	18	191303	3
43	809718	999996	809721	190278	17	190281	3
44	810716	999996	810720	189279	16	189283	3
45	811692	999996	811696	188303	15	188307	3
46	812647	999996	812650	187349	14	187352	3
47	813581	999995	813585	186414	13	186418	4
48	814495	999995	814499	185502	12	185504	4
49	815390	999995	815395	184604	11	184605	4
50	816268	999995	816272	183727	10	183731	4
51	817128	999995	817132	182867	9	182871	4
52	817971	999995	817976	182023	8	182028	4
53	818798	999994	818803	181196	7	181201	5
54	819610	999994	819651	180348	6	180385	5
55	820407	999994	820412	179587	5	179592	5
56	821189	999994	821195	178804	4	178810	5
57	821958	999994	821964	178035	3	178041	5
58	822713	999993	822719	177280	2	177286	6
59	823455	999993	823462	176807	1	176544	6
60	824185	999993	824192	175807	0	175814	6
	Sine Compl.	Sine.	Tang. Compl.	Tang	89		

A 3

I	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	824185	999993	824192	175807	60	175814	6
1	824903	999993	824910	175086	59	175096	6
2	825609	999992	825616	174383	58	174390	7
3	826304	999992	826311	173688	57	173695	7
4	826988	999992	826995	173004	56	173011	7
5	827661	999992	827669	172330	55	172338	7
6	828324	999992	828332	171667	54	171675	8
7	828977	999991	828985	171014	53	171022	8
8	829630	999991	829629	170370	52	170379	8
9	830254	999991	830263	169736	51	169745	8
10	830879	999991	830888	169111	50	169120	9
11	831495	999990	831504	168495	49	168504	9
12	832102	999990	832112	167887	48	167897	9
13	832701	999990	832711	167288	47	167298	9
14	833292	999989	833302	166697	46	166707	10
15	833875	999989	833885	166114	45	166124	10
16	834450	999989	834461	165538	44	165549	10
17	835018	999989	835028	164971	43	164981	10
18	835578	999988	835589	164410	42	164421	11
19	836131	999988	836142	163857	41	163868	11
20	836677	999988	836689	163310	40	163322	11
21	837217	999987	837229	162770	39	162782	12
22	837749	999987	837762	162237	38	162250	12
23	838276	999987	838288	161711	37	161723	12
24	838796	999987	838809	161190	36	161203	12
25	839310	999986	839323	160676	35	160689	13
26	839817	999986	839831	160168	34	160182	13
27	840319	999986	840333	159666	33	159680	13
28	840816	999985	840830	159169	32	159183	14
29	841306	999985	841321	158678	31	158693	14
30	841791	999985	841806	158193	30	158208	14
	Sine Compl.	Sine.	Tang. Compl.	Tang	88		

1	Sine.	Sine Compl.	Tang	Compl. Tang.		Compl. arith. of Sine.	Compl arith. of Si.com.
30	841791	999985	841806	158193	30	158208	14
31	842271	999984	842286	157713	29	157728	15
32	842746	999984	842761	357238	28	157253	15
33	843215	999984	843231	156768	27	156784	15
34	843679	999983	843696	156303	26	156320	16
35	844139	999983	844156	155843	25	155860	16
36	844594	999983	844611	155388	24	155405	16
37	845044	999982	845061	154938	23	154955	17
38	845489	999982	845506	154493	22	154510	17
39	845930	999981	845948	154051	21	154069	18
40	846366	999981	846384	153615	20	153633	18
41	846798	999981	846817	153182	19	153201	18
42	847226	999980	847245	152754	18	152773	19
43	847649	999980	847669	152330	17	152350	19
44	848069	999980	848089	151910	16	151930	19
45	848484	999979	848505	151494	15	151515	20
46	848896	999979	848916	151083	14	151103	20
47	849303	999978	849325	150674	13	150696	21
48	849707	999978	849729	150270	12	150292	21
49	850107	999978	850129	149870	11	149892	21
50	850504	999977	850526	149473	10	149495	22
51	850897	999977	850920	149079	9	149102	22
52	851206	999976	851309	148690	8	148713	23
53	851672	999976	851696	148303	7	148327	23
54	852055	999976	852079	147920	6	147944	23
55	852434	999975	852458	147541	5	147565	24
56	852810	999975	852834	147165	4	147189	24
57	853182	999974	853207	146792	3	146817	25
58	853552	999974	853577	146422	2	146447	25
59	853918	999973	853944	146055	1	146081	26
60	854281	999973	854308	145691	0	145718	26
	Sine Compl.	Sine.	Tang. Compl.	Tang	88		

A 4

2	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	854281	999973	854308	145691	60	145718	26
1	854642	999973	854669	145330	59	145357	26
2	854999	999972	855026	144973	58	145000	26
3	855353	999972	855381	144618	57	144646	27
4	855705	999971	855733	144266	56	144294	27
5	856054	999971	856082	143917	55	143945	28
6	856399	999970	856429	143570	54	143600	28
7	856743	999970	856772	143227	53	143256	29
8	857083	999969	857113	142886	52	142916	29
9	857421	999969	857451	142548	51	142578	30
10	857756	999968	857787	142212	50	142243	30
11	858089	999968	858120	141879	49	141910	31
12	858419	999967	858451	141548	48	141580	31
13	858746	999967	858779	141220	47	141253	32
14	859072	999967	859105	140894	46	140927	32
15	859394	999966	859428	140571	45	140605	33
16	859715	999966	859749	140250	44	140284	33
17	860033	999965	860067	139932	43	139966	34
18	860348	999965	860383	139616	42	139651	34
19	860662	999964	860697	139302	41	139337	35
20	860973	999963	861009	138990	40	139026	36
21	861282	999963	861318	138681	39	138717	36
22	861589	999962	861626	138373	38	138410	37
23	861893	999962	861931	138068	37	138106	37
24	862196	999961	862234	137765	36	137803	38
25	862496	999961	862535	137464	35	137503	38
26	862794	999960	862834	137165	34	137205	39
27	863091	999960	863130	136869	33	136908	39
28	863385	999959	863428	136574	32	136614	40
29	863677	999959	863716	136281	31	136322	40
30	863967	999958	864009	135990	30	136032	41
	Sine Compl.	Sine.	Tang. Compl.	Tang	87		

2	Sine	Sine Compl	Tang	Tang. Compl.		Compl. arith of Sine.	Compl. arith of Si.com.
30	863967	999958	864009	135990	30	136032	41
31	864256	999958	864298	135701	29	135743	41
32	864542	999957	864585	135414	27	135457	42
33	864827	999956	864870	135129	27	135172	43
34	865110	999956	865153	134848	26	134889	43
35	865391	999955	865435	134564	25	134608	44
36	865670	999955	865714	134285	24	134329	44
37	865947	999954	865992	134007	23	134052	45
38	866223	999954	866268	133731	22	133776	45
39	866496	999953	866543	133456	21	133503	46
40	866768	999952	866815	133184	20	133231	47
41	867039	999952	867086	132913	19	132960	47
42	867308	999951	867356	132643	18	132691	48
43	867575	999951	867623	132376	17	132424	48
44	867840	999950	867889	132110	16	132159	49
45	868104	999949	868154	131845	15	131895	50
46	868366	999949	868417	131582	14	131633	50
47	868627	999948	868678	131321	13	131372	51
48	868886	999948	868938	131061	12	131113	51
49	869143	999947	869196	130803	11	130856	52
50	869399	999946	869452	130547	10	130600	53
51	869654	999946	869708	130291	9	130345	53
52	869907	999945	869961	130038	8	130092	54
53	870158	999944	870213	129786	7	129841	55
54	870408	999944	870464	129535	6	129591	55
55	870657	999943	870713	129286	5	129342	56
56	870904	999943	870961	129038	4	129095	56
57	871150	999942	871208	128791	3	128849	57
58	871395	999941	871453	128546	2	128604	58
59	871638	999941	871697	128302	1	128361	58
60	871880	999940	871939	128060	0	128119	59
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3	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith. of Sine.	Compl. arith. of Si.Com
0	871880	999940	871939	128056	50	128119	59
1	872120	999939	872180	127819	59	127879	60
2	872359	999939	872420	127579	58	127640	60
3	872597	999938	772658	127341	57	127402	61
4	872833	999937	872895	127104	56	127166	62
5	73068	999937	873131	126868	55	126931	62
6	873302	999936	873366	126633	54	126697	63
7	873535	999935	873599	126400	53	126464	64
8	873766	999935	873831	126168	52	126233	64
9	873996	999934	874062	125937	51	126003	65
10	874225	999933	874292	125707	50	125774	66
11	874453	999932	874520	125479	49	125546	67
12	874680	999932	874747	125252	48	125319	67
13	874905	999931	874974	125026	47	125094	68
14	875129	999930	875198	124801	46	124870	69
15	875352	999930	875422	124577	45	124647	69
16	875574	999929	875645	124354	44	124425	70
17	875795	999928	875866	124133	43	124204	71
18	876015	999927	876087	123912	42	123984	72
19	876233	999927	876306	123693	41	123766	72
20	876451	999926	876524	123475	40	123548	73
21	876667	999925	876741	123258	39	123332	74
22	876382	999924	876957	123042	38	123117	75
23	877096	999924	877172	122827	37	122903	75
24	877310	999923	877386	122613	36	122689	76
25	877522	999922	877599	122400	35	122477	77
26	877733	999921	877811	122188	34	122266	78
27	877943	999921	878022	121977	33	122056	78
28	878152	999920	878231	121768	32	121847	79
29	878360	999919	778440	121559	31	121639	80
30	878567	999918	778648	121351	30	121432	81
	Sine Compl.	Sine.	Tang. Compl.	Tang	86		

3	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	878567	999918	878648	121351	30	121432	-81
31	878773	999918	878855	121144	29	121226	81
32	878978	999917	879061	120938	28	121021	82
33	879182	999916	879266	120733	27	120817	83
34	879385	999915	879470	120529	26	120614	84
35	879588	999915	879673	120326	25	120411	84
36	879789	999914	879875	120124	24	120210	85
37	879989	999913	880076	119923	23	120010	86
38	880189	999912	880276	119723	22	119810	87
39	880387	999911	880475	119524	21	119612	88
40	880585	999911	880674	119325	20	119414	88
41	880781	999910	880871	119128	19	119218	89
42	880977	999909	881068	118931	18	119022	90
43	881172	999908	881265	118735	17	118827	91
44	881366	999907	881457	118541	16	118633	92
45	881559	999906	881652	118347	15	118440	93
46	881752	999906	881846	118153	14	118247	93
47	881943	999905	882038	117961	13	118056	94
48	882134	999904	882229	117770	12	117865	65
49	882324	999903	882420	117579	11	117675	96
50	882512	999902	882610	117389	10	117487	97
51	882701	999901	882799	117200	9	117298	98
52	882888	999901	882987	117012	8	117111	98
53	883074	999600	883174	116825	7	116925	99
54	883260	999899	883361	116388	6	116739	100
55	883445	999898	883547	116452	5	116554	101
56	883629	999897	883732	116267	4	116370	102
57	883813	999896	883916	116083	3	116186	103
58	883995	999895	884099	115900	2	116004	104
59	884177	999894	884282	115717	1	115822	105
60	884358	999894	884494	115535	0	115641	105

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4	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
0	384358	999894	834464	115535	60	115641	105
1	384538	999893	884645	115354	59	115461	106
2	384718	999892	884825	115174	58	115281	107
3	384897	999891	885025	114994	57	115102	107
4	385075	999890	885184	114815	56	114924	108
5	385252	999889	885362	114637	55	114747	109
6	385429	999888	885540	114459	54	114570	110
7	385604	999887	885717	114282	53	114393	111
8	385781	999886	885893	114106	52	114215	112
9	385954	999885	886068	113931	51	114045	113
10	386128	999884	886243	113756	50	114045	114
11	386301	999883	886417	113582	49	113871	114
12	386473	999882	886590	113409	48	113698	115
13	386645	999882	886763	113236	47	113526	116
14	386816	999881	886935	113064	46	113354	117
15	386986	999880	887106	112893	45	113183	118
16	387156	999879	887276	112723	44	113013	119
17	387325	999878	887446	112553	43	112843	120
18	387493	999877	887616	112383	42	112674	121
19	387661	999876	887784	112215	41	112506	122
20	387828	999875	887972	112037	40	112337	123
21	387994	999874	888120	111879	39	112171	124
22	388160	999873	888289	111713	38	112005	125
23	388325	999872	888453	111545	37	111839	126
24	388490	999871	888619	111381	36	111674	127
25	388654	999870	888782	111216	35	111509	128
26	388817	999869	888947	111052	34	111545	129
27	388980	999868	889111	110888	33	111182	130
28	389142	999867	889274	110725	32	111019	131
29	389303	999866	889436	110563	33	110857	132
30	389464	999865	889597	110401	30	110696	133
						110535	134
	Sine Compl.	Sine.	Tang. Compl.	Tang	85		

4	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si. com.
30	889464	999865	889598	110401	30	110535	134
31	889624	999864	889759	110240	29	110375	135
32	889784	999863	889920	110079	28	110215	136
33	889943	999862	890080	109919	27	110056	137
34	890101	999861	890239	109760	26	109898	138
35	890259	999860	890398	109601	25	109740	139
36	890416	999859	890556	109443	24	109583	140
37	890573	999858	890714	109285	23	109426	141
38	890729	999857	890871	109128	22	109270	142
39	890885	999856	891028	108971	21	109114	143
40	891040	999855	891184	108815	20	108959	144
41	891194	999854	891340	108659	19	108805	145
42	891348	999853	891495	108504	18	108651	146
43	891502	999852	891649	108350	17	108497	147
44	891655	999851	891803	108196	16	108344	148
45	891807	999850	891956	108043	15	108192	149
46	891959	999849	892109	107890	14	108040	150
47	892110	999848	892261	107738	13	107889	151
48	892261	999847	892413	107586	12	107738	152
49	892411	999846	892564	107435	11	107588	153
50	892560	999845	892715	107284	10	107439	154
51	892710	999844	892865	107134	9	107289	155
52	892858	999843	893015	106984	8	107141	156
53	893006	999842	893164	106835	7	106993	157
54	893154	999842	893313	106686	6	106845	158
55	893301	999839	893461	106538	5	106698	160
56	893448	999838	893609	106390	4	106551	161
57	893594	999837	893756	106243	3	106405	162
58	893739	999836	893903	106096	2	106260	163
59	893884	999835	894049	105950	1	106115	164
60	894029	999834	894195	105804	0	105970	165
	Sine Compl.	Sine.	Tang. Compl.	Tang	85		

5	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith. o Si.com
0	894029	999834	894195	105804	60	105970	165
1	894173	999833	894340	105659	59	105826	166
2	894317	999832	894485	105514	58	105682	167
3	894460	999831	894629	105370	57	105539	168
4	894603	999829	894773	105226	56	105396	170
5	894745	999828	894916	105082	55	105254	171
6	894887	999827	895059	104940	54	105112	172
7	895028	999826	895202	104797	53	104971	173
8	895169	999825	895344	104655	52	104830	174
9	895309	999824	895484	104514	51	104690	175
10	895449	999823	895626	104373	50	104550	176
11	895589	999822	895767	104232	49	104410	177
12	895728	999820	895907	104092	48	104271	179
13	895867	999819	896047	103952	47	104132	180
14	896005	999818	896186	103813	46	103994	181
15	896142	999817	896325	103674	45	103857	182
16	896280	999816	896463	103536	44	103719	183
17	896416	999815	896601	103398	43	103583	184
18	896553	999813	896739	103260	42	103446	186
19	896689	999812	896876	103123	41	103310	187
20	896824	999811	897013	102986	40	103175	188
21	896959	999810	897149	102850	39	103040	189
22	897094	999809	897285	102714	38	102905	190
23	897228	999808	897420	102579	37	102771	191
24	897362	999806	897555	102444	36	102637	193
25	897496	999805	897690	102309	35	102503	194
26	897629	999804	897824	102175	34	102370	195
27	897761	999803	897958	102041	33	102238	196
28	897894	999802	898092	101907	32	102105	197
29	898025	999800	898225	101774	31	101974	199
30	898157	999799	898357	101642	30	101842	200

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5	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	898157	999799	898357	101642	60	101842	200
31	898288	999798	898489	101510	59	101711	201
32	898418	999797	898621	101378	58	101581	202
33	898549	999795	898753	101246	57	101450	204
34	898678	999794	898884	101115	56	101321	205
35	898808	999793	899014	100985	55	101191	206
36	898937	999792	899145	100854	54	101062	207
37	899066	999790	899275	100724	53	100933	209
38	899194	999789	899404	100595	52	100805	210
39	899322	999788	899533	100466	51	100677	211
40	899449	999787	899662	100337	50	100550	212
41	899576	999785	899790	100239	49	100423	214
42	899703	999784	899918	100081	48	100296	215
43	899829	999783	900046	99953	47	100170	216
44	899955	999782	900173	99826	46	100044	217
45	900081	999780	900300	99699	45	99918	219
46	900206	999779	900427	99572	44	99793	220
47	900331	999778	900553	99446	43	99668	221
48	900456	999777	900679	99320	42	99543	222
49	900580	999775	900804	99195	41	99419	224
50	900704	999774	900929	99070	40	99295	225
51	900827	999773	901054	98945	39	99172	226
52	900950	999771	901179	98820	38	99049	228
53	901073	999770	901303	98696	37	98926	229
54	901196	999769	901426	98573	36	98803	230
55	901318	999768	901550	98449	35	98681	231
56	901439	999766	901673	98326	34	98560	233
57	901561	999765	901795	98204	33	98438	234
58	901682	999764	901918	98081	32	98317	235
59	901803	999762	902040	97959	31	98196	237
60	901923	999761	902162	97837	30	98076	238
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6	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith.o Si.com
0	901923	999761	902162	97837	60	98076	238
1	902043	999760	902283	97716	59	97956	239
2	902163	999758	902404	97595	58	97836	241
3	902282	999757	902525	97474	57	97717	242
4	902401	999756	902645	97354	56	97598	243
5	902520	999754	902765	97234	55	97479	245
6	902638	999753	902885	91714	54	93761	246
7	902756	999752	903004	96995	53	97243	247
8	902874	999750	903123	96876	52	97125	249
9	902991	999749	903242	96757	51	97008	250
10	903108	999747	903360	96639	50	96891	252
11	903225	999746	903479	96520	49	96774	253
12	903342	999745	903596	96403	48	96657	254
13	903458	999742	903714	96285	47	96541	256
14	903574	999742	903831	96168	46	96425	257
15	903689	999741	903948	96051	45	96310	258
16	903804	999739	904065	95934	44	96195	260
17	903919	999738	904181	95818	43	96080	261
18	904034	999736	904297	95702	42	95965	263
19	904148	999735	904412	95587	41	95851	264
20	904262	999734	904528	95471	40	95737	265
21	904376	999732	904643	95356	39	95623	267
22	904489	999731	904758	95127	38	95623	268
23	904602	999729	904872	95013	37	93510	270
24	905715	999728	904986	95284	36	95397	271
25	904827	999727	905100	94899	35	95172	272
26	904940	999725	905214	90785	34	95059	274
27	905051	999724	905327	94672	33	94948	275
28	905163	999722	905440	94559	32	94836	276
29	905274	999721	905553	94446	31	94725	277
30	905385	999719	905665	94334	30	94614	280
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6	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com
30	905385	999719	905665	94334	30	94614	280
31	905496	999718	905778	94221	29	94503	281
32	905607	999717	905890	94109	28	94392	282
33	905717	999715	906001	93998	27	94282	284
34	905827	999714	906112	93887	26	94172	285
35	905936	999712	906224	93775	25	94063	287
36	906046	999711	906334	43665	24	93953	288
37	906155	999709	906445	93554	23	93844	290
38	906263	999708	906555	93444	22	93736	291
39	906372	999706	906665	93334	21	93627	293
40	906480	999705	906775	93224	20	93519	294
41	906588	999703	906884	93115	19	93411	296
42	906696	999702	906993	93006	18	93303	297
43	906803	999700	907102	92897	17	93196	298
44	906910	999699	907211	92788	16	93089	300
45	907017	999697	907319	92680	15	92982	302
46	907124	999696	907427	92572	14	92875	303
47	907230	999694	907535	92464	13	92769	305
48	907336	999693	907643	92356	12	92663	306
49	907442	999691	907750	92249	11	92557	308
50	907547	999690	907857	92142	10	92452	309
51	907653	999688	907964	92035	9	92346	311
52	907758	999687	908070	91929	8	92241	312
53	907863	999685	908177	91822	7	92136	314
54	907967	999684	908283	91716	6	92032	315
55	908071	999682	908389	91610	5	91928	317
56	908175	999681	908494	91505	4	91824	318
57	908279	999679	908599	91400	3	91720	320
58	908383	999678	908705	91294	2	91616	321
59	908486	999676	908809	91190	1	91513	323
60	908580	999675	908914	91085	0	91410	324

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7	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si. com
0	908589	999675	908914	91085	60	91410	324
1	908694	999673	909018	90981	59	91307	326
2	908794	999671	909122	90877	58	91205	328
3	908897	999670	909226	90773	57	91103	329
4	908999	999668	909330	90669	56	91000	331
5	909100	999667	909433	90566	55	90899	332
6	909202	999665	909536	90463	54	90797	334
7	909303	999664	909639	90360	53	90696	335
8	909404	999662	909742	90257	52	90595	337
9	909505	999660	909844	90155	51	90495	337
10	909606	999659	909946	90053	50	90393	340
11	909706	999657	910048	89951	49	90293	342
12	909806	999656	910150	89849	48	90193	343
13	909906	999654	910251	89748	47	90093	345
14	910006	999652	910353	89646	46	89993	347
15	910105	999651	910454	89545	45	89894	348
16	910204	999649	910555	89445	44	89795	350
17	910303	999648	910655	89344	43	89696	351
18	910402	999646	910755	89244	42	89597	353
19	910500	999644	910856	89143	41	89499	355
20	910599	999643	910955	89044	40	89400	356
21	910697	999641	911055	88944	39	89302	358
22	910795	999640	911155	88844	38	89204	356
23	910892	999638	911254	88745	37	89107	361
24	910990	999636	911353	88646	36	89009	363
25	911087	999635	911452	88547	35	88912	364
26	911184	999633	911550	88449	34	88815	366
27	911280	999631	911649	88350	33	88719	368
28	911377	999630	911747	88252	32	88622	369
29	911473	999628	911845	88154	31	88526	371
30	911569	999626	911942	88057	30	88430	373

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7	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith.of Si.com.
30	911569	999626	911942	88057	30	88430	373
31	911665	999625	912040	87959	29	88334	374
32	911761	999623	912137	87862	28	88238	376
33	911856	999621	912234	87765	27	88143	378
34	911951	999620	912331	87668	26	88048	379
35	912046	999618	912428	87571	25	87143	381
36	912141	999616	912524	87475	24	87858	383
37	912236	999615	912621	87378	23	87763	384
38	912330	999613	912717	87281	22	87669	386
39	912424	999611	912813	87186	21	87575	388
40	912518	999610	912908	87091	20	87481	389
41	912612	999608	913004	86995	19	87387	391
42	912706	999606	913099	86900	18	87294	393
43	912799	999604	913194	86805	17	87200	395
44	912892	999603	913289	86710	16	87107	396
45	912985	999601	913383	86616	15	87014	398
46	913078	999599	913478	86521	14	86921	400
47	913170	999598	913572	86427	13	86829	401
48	913262	999596	913666	86333	12	86737	403
49	913355	999594	913760	86239	11	86644	405
50	913447	999592	913854	86145	10	86552	407
51	913538	999591	913947	86052	9	86461	408
52	913630	999589	914040	85959	8	86369	410
53	913721	999587	914134	85865	7	86278	412
54	913812	999585	914226	85773	6	86187	414
55	913903	999584	914319	85680	5	86096	415
56	913993	999582	914412	85587	4	86005	417
57	914085	999580	914504	85495	3	85914	419
58	914175	999578	914596	85403	2	85824	421
59	914265	999577	914688	85311	1	85734	422
60	914355	999585	914780	85219	0	85644	424

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8	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.
0	914355	999575	914780	85219	60	85644	424
1	914445	999573	914871	85128	59	85554	426
2	914534	999571	914963	85036	58	85465	428
3	914624	999569	915054	84945	57	85375	430
4	914713	999568	915145	84854	56	85286	431
5	914802	999566	915236	84763	55	85197	433
6	914891	999564	915326	84673	54	85108	435
7	914980	999562	915417	84582	53	85019	437
8	915068	999560	915507	84492	52	84931	439
9	915156	999559	915597	84402	51	84843	440
10	915245	999557	915687	84312	50	84754	442
11	915333	999555	915777	84222	49	84666	444
12	915420	999553	915867	84132	48	84579	446
13	915508	999541	915956	84043	47	84491	448
14	915595	999550	916045	83954	46	84404	449
15	915682	999548	916134	83865	45	84317	451
16	915770	999546	916223	83776	44	84230	453
17	915856	999544	916312	83687	43	84143	455
18	915943	999542	916400	83599	42	84056	457
19	916030	999540	916489	83510	41	83969	459
20	916116	999539	916577	83422	40	83833	460
21	916202	999537	916665	83334	39	83797	462
22	916288	999535	916753	83246	38	83711	464
23	916374	999533	916849	83159	37	83625	466
24	916459	999531	916928	83071	36	83540	468
25	916545	999529	917015	82984	35	83454	470
26	916630	999527	917102	82897	34	83369	472
27	916715	999525	917189	82810	33	83284	474
28	916800	999524	917276	82723	32	83199	475
29	916885	999522	917363	82636	31	83114	477
30	916970	999520	917449	82550	30	83029	478
	Sine Compl.	Sine.	Tang. Compl.	Tang	81		

8	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si. com.
30	916970	999520	917449	82550	30	83029	479
31	917054	999518	917536	82463	29	82945	481
32	917138	999519	917622	82377	28	82861	483
33	917223	999514	917708	82291	27	82776	485
34	917306	999512	917794	82205	26	82693	487
35	917390	999510	917879	82120	25	82609	489
36	917474	999508	917965	82034	24	82525	491
37	917557	999507	918052	81949	23	82442	492
38	917641	999505	918136	81863	22	82358	494
39	917724	999503	918221	81778	21	82275	496
40	917807	999501	918305	81694	20	82192	498
41	917890	999499	918390	81609	19	82109	500
42	917972	999497	918475	81524	18	82027	502
43	918055	999495	918559	81440	17	81944	504
44	918137	999493	918643	81356	16	81862	506
45	918219	999491	918728	81271	15	81780	508
46	918301	999489	918811	81188	14	81698	510
47	918383	999487	918895	81104	13	81616	512
48	918465	999485	918979	81020	12	81534	514
49	918546	999483	919062	80937	11	81453	516
50	918628	999481	919146	80853	10	81371	518
51	918709	999479	919229	80770	9	81290	520
52	918790	999477	919312	80687	8	81209	522
53	918871	999475	919395	80604	7	81128	524
54	918951	999473	919478	80521	6	81048	526
55	919032	999471	919562	80439	5	80967	528
56	919112	999469	919643	80356	4	80887	530
57	919193	999467	919725	80274	3	80800	532
58	919273	999465	919807	80192	2	80726	534
59	619353	999463	919889	80110	1	80646	536
60	919433	999461	919071	80028	0	80566	538
	Sine Compl.	Sine.	Tang. Compl.	Tang	81		

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9	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Compl. arith.o' Si.com.
0	919433	999461	919971	800286	60	80566	538
1	919512	999459	920052	799947	59	80487	540
2	919592	999457	920134	79865	58	80407	542
3	919671	999455	920215	79784	57	80328	544
4	919751	999453	920297	79702	56	80248	546
5	919830	999451	920378	79621	55	80169	548
6	919909	999449	920459	79540	54	80090	550
7	919987	999447	920540	79459	53	80012	552
8	920066	999445	920622	79379	52	79933	554
9	920145	999443	920701	79298	51	79854	556
10	920223	999441	920781	79218	50	79776	558
11	923301	999439	920861	79138	49	79686	560
12	920379	999437	920942	79057	48	79620	562
13	920457	999435	921022	78978	47	79542	564
14	920535	999433	921101	78898	46	79464	566
15	920613	999431	921181	78818	45	79386	568
16	920690	999429	921261	78738	44	79309	570
17	920767	999427	921342	78659	43	79232	572
18	920845	999425	921419	78580	42	79154	574
19	920922	999423	921498	78501	41	79077	576
20	920999	999421	921577	78422	40	79000	576
21	921075	999419	921656	78343	39	78924	580
22	921152	999417	921735	78264	38	78847	582
23	921229	999414	921814	78185	37	78770	585
24	921305	999412	921892	78107	36	78694	587
25	921381	999410	921970	78029	35	78618	589
26	921457	999408	922049	77950	34	78542	591
27	921533	999406	922127	77872	33	78466	593
28	921609	999404	922205	77794	32	78390	595
29	921685	999402	922281	77717	31	78314	597
30	921760	999400	922360	77639	30	78239	599

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9	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	921765	999400	922360	77639	30	78239	599
31	921836	999398	922438	77561	29	78163	601
32	921911	999399	922515	77484	28	78088	603
33	921988	999393	922592	77407	27	78013	606
34	922061	999396	922670	77329	26	77938	608
35	922136	999389	922747	77252	25	77863	610
36	922211	999387	922823	77176	24	77788	612
37	922286	999385	922900	77099	23	77713	614
38	922360	999383	922977	77022	22	77639	616
39	922434	999381	923053	76946	21	77565	618
40	922509	999378	923130	76869	20	77490	621
41	922583	999376	923206	76793	19	77416	623
42	922657	999374	923282	76717	18	77342	625
43	922731	999372	923358	76642	17	77268	627
44	922804	999370	923434	76565	16	77193	629
45	922878	999368	923510	76489	15	77121	631
46	922951	999365	923585	76414	14	77048	634
47	923025	999363	923661	76338	13	76974	636
48	923098	999361	923736	76263	12	76901	638
49	923171	999359	923812	76187	11	76828	640
50	923244	999357	923887	76112	10	76755	642
51	923317	999355	923962	76037	9	76682	644
52	923389	999352	924037	75962	8	76610	647
53	923462	999350	924111	75888	7	76537	649
54	923534	999348	924186	75813	6	76465	651
55	923607	999346	924261	75738	5	76392	653
56	923679	999344	924335	75664	4	76320	655
57	923751	999341	924409	75590	3	76248	658
58	923823	999339	924483	75516	2	76176	660
59	923895	999337	924557	75442	1	76104	662
60	923967	999335	924631	75368	0	76032	664
	Sine Compl.	Sine	Tang. Compl.	Tang 80			

10 Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Compl. arith.of Si.com.
0	923967	999335	924631	75368	60	76032	664
1	924038	999332	924705	75294	59	75961	667
2	924110	999330	924779	75220	58	75889	669
3	924181	999328	924852	75147	57	75818	671
4	924252	999326	924926	75073	56	75747	673
5	924323	999323	924999	75000	55	75676	676
6	924394	999321	925073	74926	54	75605	678
7	924465	999319	925146	74853	53	75534	680
8	924536	999317	925219	74780	52	75463	682
9	924606	999314	925292	74708	51	75393	685
10	924677	999312	925364	74635	50	75322	687
11	924747	999310	925437	74562	49	75252	689
12	924818	999308	925509	74490	48	75181	691
13	924888	999305	925582	74417	47	75111	694
14	924958	999303	925654	74345	46	75041	696
15	925028	999301	925726	74273	45	74971	698
16	925098	999299	925798	74200	44	74901	700
17	925167	999296	925870	74129	43	74832	703
18	925237	999294	925942	74057	42	74762	705
19	925306	999292	926014	73285	41	74693	707
20	925376	999289	926086	73913	40	74623	710
21	925445	999287	926157	73842	39	74554	712
22	925514	999285	926229	73770	38	74485	714
23	925583	999282	926300	73699	37	74416	717
24	925652	999280	926371	73628	36	74347	719
25	925721	999278	926442	73557	35	74278	721
26	925789	999275	926513	73486	34	74210	724
27	925858	999273	926584	73415	33	74141	726
28	925926	999271	926655	73344	32	74073	728
29	925995	999268	926726	73273	31	74004	731
30	926062	999266	926796	73903	30	73636	733
	Sine Compl	Sine.	Tang. Compl.	Tang	79		

10	Sine.	Sine Compl.	Tang	Tang. Compl		Compl. arith. of Sine	Compl. arith. of Si.com.
30	926063	999266	926796	73203	30	73936	733
31	926131	999264	926867	73132	29	73868	735
32	926199	999261	926937	73062	28	73800	738
33	926267	999259	927007	72992	27	73732	740
34	926335	999257	927077	72922	26	73664	742
35	926402	999254	927147	72852	25	73597	745
36	926473	999252	927217	72782	24	73529	747
37	926537	999250	927287	72712	23	73462	749
38	926605	999247	927357	72642	22	73394	752
39	926672	999245	927426	72553	21	73327	754
40	926739	999243	927496	72503	20	73260	756
41	926806	999240	927565	72434	19	73193	759
42	926873	999238	927635	72364	18	73126	761
43	926940	999235	927704	72295	17	73059	764
44	927006	999233	927773	72226	16	72993	766
45	927073	999231	927842	72157	15	72926	768
46	927139	999228	927911	72088	14	72860	771
47	927206	999226	927980	72019	13	72793	773
48	927272	999223	928048	71951	12	72727	776
49	927338	999221	928117	71882	11	72661	778
50	927404	999219	928185	71814	10	72595	780
51	927470	999216	928254	71745	9	72529	783
52	927536	999214	928322	71677	8	72463	785
53	927602	999211	928390	71609	7	72397	788
54	927668	999209	928458	71541	6	72331	790
55	927733	999206	928526	71413	5	72266	793
56	927799	999204	928594	71405	4	72200	795
57	927864	999202	928662	71337	3	72135	797
58	927929	999199	928730	71269	2	72070	800
59	927994	999197	928797	71202	1	72005	802
60	928059	999194	928865	71134	0	71940	805
	Sine Compl.	Sine.	Tang. Compl.	Tang	79		

11	Sine	Sine Comp	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
0	928059	999194	928865	71135	60	71940	805
1	928124	999192	928932	71067	59	71810	807
2	928189	999189	928999	71000	58	71875	810
3	928254	999187	929067	70932	57	71745	812
4	928319	999184	929134	70865	56	71680	815
5	928383	999181	929201	70793	55	71616	817
6	928448	999179	929266	70734	54	71551	820
7	928512	999177	929335	70665	53	71484	822
8	928576	999174	929420	70598	52	71423	825
9	928640	999172	929463	70531	51	71359	827
10	928704	999169	929534	70465	50	71295	830
11	928768	999167	929601	70398	49	71231	832
12	928532	999164	929667	70332	48	70967	835
13	928896	999162	929733	70266	47	71103	837
14	928950	999159	929800	70199	46	71039	840
15	929023	999157	929866	70133	45	70976	842
16	929087	999154	929932	70067	44	70912	845
17	929150	999152	929998	70001	43	70849	847
18	929213	999149	930063	69936	42	70786	850
19	929276	999147	930129	69870	41	70723	852
20	929339	999144	930195	69804	40	70660	855
21	929402	999142	930262	69739	39	70597	857
22	929465	999139	930326	69673	38	70534	860
23	929528	999137	930391	69608	37	70471	862
24	929591	999134	930456	69543	36	70408	865
25	929653	999132	930521	69478	35	70346	867
26	929716	999129	930585	69413	34	70283	870
27	929778	999126	930651	69348	33	70221	873
28	929841	999124	930716	69283	32	70158	875
29	929903	999121	930781	69218	31	70096	878
30	929965	999119	930845	69153	30	70034	880

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11	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com
30	929965	999110	930846	69153	30	70034	880
31	930027	999116	930910	69089	29	69972	883
32	930089	999114	930975	69024	28	69910	885
33	930151	999111	931039	68960	27	69848	888
34	930213	999108	931104	68895	26	69786	891
35	930274	999106	931168	68831	25	69725	893
36	930336	999103	931232	68767	24	69663	896
37	930397	999101	931296	68703	23	69602	898
38	930459	999098	931360	68639	22	69542	901
39	930520	999095	931424	68575	21	69479	904
40	930581	999093	931488	68511	20	69418	906
41	930643	999090	931552	68447	19	69356	909
42	930704	999088	931615	68384	18	69295	911
43	930765	999085	931679	68320	17	69234	914
44	930825	999082	931742	68257	16	69174	917
45	930886	999080	931806	68193	15	69113	919
46	930947	999077	931869	68130	14	69052	922
47	931007	999075	931932	68067	13	68992	924
48	931068	999072	931996	68003	12	68931	927
49	931128	999069	932059	67940	11	68871	930
50	931184	999067	932122	67877	10	68810	932
51	931249	999064	932185	67814	9	68750	935
52	931309	999061	932247	67752	8	68690	938
53	931369	999059	932310	67689	7	68630	940
54	931429	999056	942373	67626	6	68570	943
55	931489	999053	932435	67567	5	68510	946
56	931549	999051	932498	67501	4	68450	948
57	931609	999048	932560	67439	3	68390	951
58	931668	999045	932626	67376	2	68331	954
59	931728	999043	932685	67314	1	68271	956
60	931787	999040	932747	67252	0	68212	959
	Sine Compl.	Sine.	Tang. Compl.	Tang	78		

12	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. o Si.com
0	931787	999040	932747	67252	60	68212	959
1	931847	999037	932809	67190	59	68152	962
2	931906	999035	932871	67128	58	68093	964
3	931965	999032	932933	67066	57	68034	967
4	932024	999029	932995	67004	56	67975	970
5	932084	999026	933057	66942	55	67916	973
6	932142	999024	933118	66881	54	67857	975
7	932201	999021	933180	66819	53	67708	978
8	932260	999018	933241	66758	52	67739	981
9	932319	999016	933303	66696	51	67680	983
10	932378	999013	933361	66635	50	67621	986
11	932436	999010	933425	66574	49	67563	989
12	932495	999007	933487	66512	48	67504	992
13	932553	999005	933548	66451	47	67446	994
14	932611	999002	933609	66390	46	67388	997
15	932669	998999	933670	66329	45	67330	000
16	932728	998996	933732	66268	44	67271	1003
17	932785	998994	933791	66208	43	67213	1005
18	932844	998991	933852	66147	42	67155	1008
19	932901	998988	933913	66086	41	67097	1011
20	932959	998985	933973	66026	40	67040	1014
21	933017	998983	934034	65965	39	66982	1016
22	933075	998980	934094	65905	38	66924	1019
23	933132	998977	934155	65844	37	66867	1022
24	933190	998975	934215	65784	36	66809	1025
25	133247	998972	934275	65224	35	66752	1027
26	933305	998969	934335	65664	34	6694	1030
27	933362	998966	934395	65604	33	6637	1033
28	933419	998963	934455	65544	32	6580	1036
29	933476	998960	934515	65484	31	6523	1039
30	933533	998958	934575	65424	30	6466	1041

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12	Sine.	Sine Compl.	Tang	Tang. Compl.			Compl. Arith. of Sine.	Compl. arith. of Si.com.
30	933533	998958	934575	65424	30		66466	1041
31	933590	998955	934635	65364	29		66409	1044
32	933647	998952	934694	65305	28		66352	1047
33	933704	998949	934754	65245	27		66295	1050
34	933760	998946	934814	65185	26		66239	1053
35	933817	998944	934873	65126	25		66182	1055
36	933874	998941	934932	65067	24		66125	1058
37	933930	998938	934992	65007	23		66069	1061
38	933687	998935	935051	64948	22		66012	1064
39	9.4043	998932	935110	64889	21		65956	1167
40	934099	998929	935169	64830	20		65900	1070
41	934155	998927	935228	64771	19		65844	1072
42	934211	998924	935287	64712	18		6788	1075
43	934267	998921	935346	64653	17		65732	1078
44	934323	998918	935405	64594	16		65676	1081
45	934379	998915	935464	64535	15		65620	1084
46	934435	998912	935522	64477	14		65564	1087
47	934491	998909	935581	64418	13		65508	1090
48	934546	998907	935639	64360	12		65453	1092
49	934602	998904	935698	64301	11		65397	1095
50	934657	998901	935756	64243	10		65342	1098
51	934713	998898	935814	64185	9		65286	1101
52	934768	998895	935873	64126	8		65231	1104
53	934823	998892	935931	64068	7		65176	1107
54	934879	998889	935989	64010	6		65120	1112
55	934934	998886	936047	63952	5		65065	1113
56	934989	998884	936105	63894	4		65010	1115
57	935044	998881	936163	63836	3		64955	1118
58	935099	998878	936221	63779	2		64900	1121
59	935154	998875	936278	63721	1		64845	1124
60	935208	998872	936336	63663	0		64791	1127
	Sine Compl.	Sine.	Tang. Compl.	Tang	77			

13	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.Com
0	935208	998872	936336	63663	60	64791	1127
1	935263	998869	936394	63605	59	64736	1130
2	935318	998866	936451	63548	58	64681	1133
3	935372	998863	936509	63490	57	64627	1136
4	935427	998860	936566	63433	56	64572	1139
5	935481	998857	936623	63376	55	64518	1142
6	935535	998854	936681	63319	54	64464	1145
7	935590	998851	936738	63261	53	64409	1148
8	935644	998848	936795	63204	52	64355	1151
9	935698	998845	936852	63147	51	64301	1154
10	935752	998843	936909	63090	50	64247	1156
11	935806	998840	936966	63033	49	64193	1159
12	935860	998837	937023	62976	48	64139	1262
13	935914	998834	937079	62920	47	64085	1165
14	035967	998831	937136	62863	46	64032	1168
15	936021	998828	937193	62806	45	63978	1171
16	936075	998825	937249	62750	44	63924	1174
17	936128	998822	937306	62693	43	63871	1177
18	936182	998819	937362	62637	42	63817	1180
19	936235	998816	937419	62580	41	63764	1183
20	936288	998813	937475	62524	40	63711	1186
21	936342	998810	937531	62468	39	63657	1189
22	936395	998807	937588	62411	38	63604	1192
23	936448	998804	937644	62355	37	63551	1195
24	936501	998801	937700	62299	36	63498	1198
25	936554	998798	937756	62240	35	63445	1201
26	936607	998795	937812	62187	34	63392	1204
27	936660	998792	937868	62131	33	63339	1207
28	936713	998789	937923	62076	32	63286	1210
29	936765	998786	937979	62020	31	63234	1213
30	936818	998783	938035	62964	30	63181	1216

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13	Sine.	Sine Comp.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith:of vi.com.
30	936818	998783	938035	61964	30	63181	1210
31	936871	998780	938091	61909	29	63128	1219
32	936923	998777	938146	61853	28	63076	1222
33	936976	998774	938202	61797	27	63023	1225
34	937028	998709	938257	61742	26	62971	1229
35	937080	998767	938312	61687	25	62919	1232
36	937133	998764	938368	61631	24	62866	1235
37	937185	998761	938423	61576	23	62814	1238
38	937237	998758	938478	61521	22	62762	1241
39	937289	998755	938533	61466	21	62710	1244
40	937341	998752	938588	61411	20	62658	1247
41	937393	998749	938643	61356	19	62606	1250
42	937445	998746	938698	61301	18	62554	1253
43	937496	998743	938753	61246	17	62503	1256
44	937548	998740	938808	61191	16	62452	1259
45	937600	998737	938863	61136	15	62399	1262
46	937651	998734	938917	61082	14	62348	1265
47	937703	998731	938972	61027	13	62296	1268
48	937754	998727	939027	60973	12	62245	1272
49	937806	998724	939081	60918	11	62193	1275
50	937857	998721	939135	60864	10	62142	1278
51	937908	998718	939190	60809	9	62091	1281
52	937960	998715	939244	60755	8	62039	1284
53	938011	998712	939298	60701	7	61988	1287
54	938062	998709	939355	60644	6	61937	1290
55	938113	998706	939407	60592	5	61886	1293
56	938164	998702	939461	60538	4	61835	1297
57	938215	998699	939515	60484	3	61784	1300
58	938266	998696	939569	60430	2	61733	1303
59	938316	998693	939623	60376	1	61683	1306
60	938367	998690	939677	60322	0	61632	1309

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 76 | | |

14	Sine	Sine Compl	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.Com
0	938367	998690	939678	60322	60	61632	1309
1	938418	998687	939730	60269	59	61581	1312
2	938468	998684	939784	60215	58	61531	1315
3	938519	998680	939838	60161	57	61480	1319
4	938569	998677	939891	60108	56	61480	1323
5	938620	998674	939945	60054	55	61379	1325
6	938670	998671	939998	60001	54	81329	1328
7	938720	998698	940052	59947	53	61279	1331
8	938770	998668	940105	59894	52	61229	1334
9	938821	998661	940159	59840	51	61178	1338
10	938871	998658	940212	59787	50	61128	1341
11	938921	998655	940265	59734	49	61078	1344
12	938971	998652	940318	59681	48	61028	1347
13	939020	998649	940371	59628	47	60979	1350
14	03.070	998645	940424	59575	46	60929	1354
15	939120	998642	940477	59522	45	60879	1357
16	939170	998639	940530	59469	44	60829	1360
17	939219	998636	940583	59416	43	60780	1363
18	939269	998633	940636	59363	42	60730	6366
19	939319	998629	940689	59310	41	60680	1370
20	939368	998616	940741	59258	40	60631	1373
1	939417	998623	940794	59205	39	60582	1376
22	939467	998620	940847	59152	38	60532	1379
23	939516	998616	940899	59100	37	60483	1383
24	939565	998613	940952	59047	36	60434	1385
5	939614	998610	941004	58995	35	60385	1389
26	939664	998607	941056	58943	34	60335	1392
27	939713	998603	941109	58890	33	60286	1396
28	939762	998600	941161	58838	32	60237	1399
29	939811	998597	941213	58786	31	60188	1402
30	939859	998594	941265	58734	30	60140	1405

14	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com
30	939859	998594	941265	58734	30	60140	1405
31	939908	998590	941317	58682	29	60091	1409
32	939957	998587	941369	58630	28	60012	1412
33	940006	998584	941421	58578	27	59993	1415
34	940054	998581	941473	58526	26	59945	1418
35	940103	998577	941525	58474	25	59896	1422
36	940153	998574	941577	58422	24	59847	1425
37	940200	998571	941629	58370	23	59799	1428
38	940248	998567	941680	58319	22	59751	1432
39	940297	998564	941732	58267	21	59702	1435
40	940345	998561	941784	58215	20	59654	1438
41	940393	998557	941835	58164	19	59606	1442
42	940441	99 554	941887	58112	18	59558	1445
43	940490	998551	941938	58062	17	59509	1448
44	940538	998548	941990	58009	16	59461	1451
45	940586	998544	942041	57958	15	59413	1455
46	940634	998541	942092	57907	14	59365	1458
47	940682	998538	942143	57856	13	59317	1461
48	940729	998534	942195	57804	12	59270	1465
49	940777	998531	942246	57753	11	59222	1468
50	940825	998528	942297	57702	10	59174	1471
51	940873	998524	942348	57651	9	59126	1475
52	940920	998521	942399	57600	8	59079	1478
53	940968	998517	942450	57549	7	59031	1482
54	941015	998514	942501	57498	6	58984	1485
55	941063	998511	942551	57448	5	68936	1488
56	941110	998507	942602	57397	4	58889	1492
57	941157	998504	942653	57346	3	58842	1495
58	941205	998501	942704	57295	2	58794	1498
59	941252	998497	942754	57245	1	58747	1502
60	941299	998494	942805	57194	0	58700	1505
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15	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com
0	941299	998494	942805	57194	60	58700	1505
1	941346	998490	942855	57144	59	58653	1509
2	941393	998487	942906	57093	58	58606	1512
3	941440	998484	942956	57043	57	58559	1515
4	941487	998480	943006	56993	56	58512	1519
5	941534	998477	943057	56942	55	58465	1522
6	941581	998474	943107	56892	54	58418	1526
7	941628	998470	943157	56842	53	58371	1529
8	941675	998467	943207	56792	52	58324	1532
9	941721	998463	943257	56742	51	58278	1536
10	941768	998460	943308	56691	50	58233	1539
11	941814	998456	943358	56641	49	58185	1543
12	941861	998453	943408	56592	48	58138	1546
13	941907	998450	943457	56542	47	58092	1549
14	941954	998446	943507	56492	46	58045	1553
15	942000	998443	943557	56442	45	57999	1556
16	942047	998439	943607	56392	44	57952	1560
17	942093	998436	943657	56342	43	57906	1563
18	942139	998432	943706	56293	42	57860	1567
19	942185	998429	943756	56243	41	57814	1570
20	942231	998425	943805	56194	40	57768	1574
21	942277	998422	943855	56144	39	57722	1577
22	942323	998418	943904	56095	38	57676	1581
23	942369	998415	943954	56045	37	57630	1584
24	942415	998412	944003	55996	36	57584	1588
25	942461	998408	944052	55947	35	57538	1591
26	942507	998405	944102	55897	34	57492	1594
27	942552	998401	944151	55848	33	57447	1598
28	942598	998398	944200	55799	32	57401	1601
29	942644	998394	944249	55750	31	57355	1605
30	942689	998391	944298	55701	30	57310	1608

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15	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. o Si.com.
30	942689	998391	944298	55701	30	57310	1608
31	942735	998387	944347	55652	29	57264	1612
32	942780	998384	944396	55603	28	57219	1615
33	942826	998380	944445	55554	27	57173	1619
34	942871	998377	944494	55505	26	57128	1622
35	942917	998373	944543	55456	25	57082	1626
36	942962	998369	944592	55407	24	57037	1630
37	943007	998366	944641	55358	23	56992	1633
38	943052	998362	944689	55310	22	56947	1637
39	943097	998359	944738	55261	21	56902	1640
40	943142	998355	944787	55212	20	56857	1644
41	943187	998352	944835	55164	19	56812	1647
42	943232	998348	944884	55115	18	56767	1651
43	943277	998345	944932	55067	17	56722	1654
44	943322	998341	944981	55018	16	56677	1658
45	943367	998338	945029	54970	15	56632	1661
46	943412	998334	945077	54922	14	56587	1665
47	943456	998330	945126	54873	13	56543	1669
48	943501	998327	945174	54825	12	56498	1672
49	943546	998323	945222	54777	11	56453	1676
50	943590	998320	945270	54729	10	56409	1679
51	943635	998316	945318	54681	9	56364	1683
52	943679	998313	945366	54633	8	56320	1686
53	943724	998309	945414	54585	7	56275	1690
54	943768	998305	945462	54537	6	56231	1694
55	943812	998302	945510	54489	5	56187	1697
56	943857	998298	945558	54441	4	56142	1701
57	943901	998295	945606	54393	3	56098	1704
58	943945	998291	945654	54345	2	56054	1708
59	943989	998287	945701	54298	1	56010	1712
60	944033	998284	945749	54250	0	55966	1715
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16	Sine	Sine Compl	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si. com
0	944033	998284	945749	54250	60	55966	1715
1	944077	998280	945797	54202	59	55922	1719
2	944121	998276	945844	54155	58	55878	1723
3	944165	998273	945892	54107	57	55834	1726
4	944209	998269	945940	54059	56	55790	1730
5	944253	998266	945987	54012	55	55746	1734
6	944297	998262	946034	53965	54	55702	1737
7	944341	998258	946082	53917	53	55658	1741
8	944384	998255	946129	53870	52	55615	1744
9	944428	998251	946176	53823	51	55571	1748
10	944471	998247	946224	53775	50	55528	1752
11	944515	998244	946271	53728	49	55484	1755
12	944559	998240	946318	53681	48	55440	1759
13	944602	998236	946365	53634	47	55397	1763
14	944645	998233	946412	53587	46	55354	1766
15	944689	998229	946459	53540	45	55310	1770
16	944732	998225	946506	53493	44	55267	1774
17	944775	998222	946553	53446	43	55224	1777
18	944819	998218	946600	53399	42	55180	1781
19	944862	998214	946647	53352	41	55137	1785
20	944905	998210	946994	53305	40	55094	1789
21	944948	998207	946741	53258	39	55051	1792
22	944991	998203	946738	53211	38	55008	1796
23	945034	998199	946834	53165	37	54965	1800
24	945077	998196	946881	53118	36	54922	1803
25	945120	998192	946928	53071	35	54879	1807
26	945163	998188	946974	53025	34	54836	1811
27	945206	998184	947021	52978	33	54793	1815
28	945248	998181	947067	52932	32	54751	1818
29	945291	998177	947114	52885	31	54708	1822
30	945334	998173	947160	52839	30	54665	1826
	Sine Compl.	Sine.	Tang. Compl.	Tang	73		

16	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sne	Compl. arith. of Si.com.
30	945334	998273	947160	52839	30	54665	1826
31	945376	998169	947206	52793	29	54623	1830
32	945419	998166	947253	52745	28	54580	1833
33	945461	998162	947299	52700	27	54538	1837
34	945504	998158	947345	52654	26	54405	1841
35	945546	998154	947391	52608	25	54453	1845
36	945589	998151	947438	52561	24	54410	1848
37	945631	998147	947484	52515	23	54368	1852
38	945673	998143	947530	52469	22	54326	1856
39	945716	998139	947576	52423	21	54283	1860
40	945758	998136	947622	52377	20	54241	1863
41	945800	998132	947668	52331	19	54199	1867
42	945842	998128	947714	52285	18	54157	1871
43	945884	998124	947760	52239	17	54115	1875
44	945926	998120	947805	52194	16	54073	1879
45	945958	998117	947851	52148	15	54031	1882
46	946010	998113	947897	52102	14	53989	1886
47	946052	998109	947943	52056	13	53947	1890
48	946094	998105	947988	52011	12	53905	1894
49	946136	998101	948034	51965	11	53863	1898
50	946178	998098	948080	51919	10	53821	1901
51	946219	998094	948125	51874	9	53780	1905
52	946261	998090	948171	51828	8	53738	1909
53	946303	998086	948216	51783	7	53696	1913
54	946344	998082	948262	51737	6	53655	1917
55	946386	998078	948307	51692	5	53613	1921
56	946427	998075	948352	51647	4	53572	1924
57	946469	998071	948398	51601	3	53530	1928
58	946510	998067	948443	51556	2	53489	1932
59	946552	998063	948488	51511	1	53447	1936
60	946593	998059	948533	51466	0	53406	1940
	Sine Compl.	Sine.	Tang. Compl.	Tang	73		

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17	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
0	946593	998059	948533	51466	60	53406	1940
1	946634	998055	948579	51420	59	53365	1944
2	946676	998051	948624	51375	58	53323	1948
3	946717	998048	948669	51330	57	53282	1951
4	946758	998044	948714	51285	56	53241	1955
5	946799	998040	948759	51240	55	53200	1959
6	946840	998036	948804	51195	54	53159	1963
7	946881	998032	948849	51150	53	53118	1967
8	946922	998028	948894	51105	52	53077	1971
9	946963	998024	948938	51061	51	53036	1975
10	947004	998020	948983	51016	50	52995	1979
11	947045	998016	949028	50971	49	52954	1983
12	947086	998012	949073	50926	48	52913	1987
13	947127	998009	949118	50881	47	52872	1990
14	947167	998005	949162	50837	46	52832	1994
15	947208	998001	949207	50792	45	52791	1998
16	947249	997997	949251	50748	44	52750	2002
17	947289	997993	949296	50703	43	52710	2006
18	947330	997989	949340	50659	42	52669	2010
19	947370	997985	949385	50614	41	52627	2014
20	947411	997981	949429	50570	40	52588	2018
21	947451	997977	949474	50525	39	52548	2022
22	947492	997973	949518	50481	38	52507	2026
23	947532	997969	949562	50437	37	52467	2030
24	947573	997965	949607	50392	36	52426	2034
25	947613	997961	949651	50348	35	52386	2038
26	947653	997957	949695	50304	34	52346	2042
27	947693	997953	949739	50260	33	52306	2046
28	947733	997949	949784	50215	32	52266	2050
29	947774	997945	949828	50171	31	52225	2054
30	947814	997941	949872	50127	30	52185	2058
	Sine Compl.	Sine.	Tang. Compl.	Tang	72		

17	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	947814	997941	949872	50127	30	52185	2058
31	947854	997937	949916	50083	29	52145	2062
32	947894	997933	949960	50039	28	52105	2066
33	947934	997929	950004	49999	27	52065	2070
34	947974	997925	950048	49995	26	52025	2074
35	948014	997921	950092	49907	25	51985	2078
36	948053	997917	950135	49864	24	51946	2082
37	948093	997913	950179	49820	23	51906	2086
38	948133	997909	950223	49776	22	51866	2090
39	948173	997905	950267	49732	21	51826	2094
40	948212	997901	950310	49689	20	51787	2098
41	948252	997897	950354	49645	19	51747	2102
42	948292	997893	950398	49601	18	51707	2106
43	948331	997889	950441	49558	17	51668	2110
44	948371	997885	950485	49514	16	51628	2114
45	948410	997881	950528	49471	15	51589	2118
46	948450	997877	950572	49427	14	51549	2122
47	948489	997873	950615	49384	13	51510	2126
48	948528	997869	950659	49340	12	51471	2130
49	948568	997865	950702	49297	11	51431	2134
50	948607	997861	950745	49253	10	51392	2138
51	948646	997857	950789	49210	9	51353	2142
52	948685	997853	950832	49167	8	51314	2146
53	948725	997849	950875	49124	7	51274	2150
54	948764	997845	950919	49080	6	51235	2154
55	948803	997841	950962	49037	5	51196	2158
56	948842	997837	951005	48994	4	51157	2162
57	948881	997832	951048	48951	3	51118	2167
58	948920	997828	951091	48908	2	51079	2171
59	948959	997824	951134	48865	1	51040	2175
60	948998	997820	951177	48822	0	51001	2179
	Sine Compl.	Sine.	Tang. Compl.	Tang	72		

18 Sine.	Sine Compl	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith. of Si.com
0	948998	997820	951177	48822	60	51001	2179
1	949237	997816	951220	48779	59	50962	2183
2	949275	997812	951263	48736	58	50924	2187
3	949114	997808	951306	48693	57	50885	2191
4	949153	997804	951349	48650	56	50846	2195
5	949192	997800	951392	48607	55	50807	2199
6	949230	997795	951434	48565	54	50769	2204
7	949269	997791	951477	48522	53	50730	2208
8	949308	997787	951520	48479	52	50691	2212
9	949346	997783	951563	48436	51	50653	2216
10	949385	997779	951605	48394	50	50614	2220
11	949423	997775	951648	48351	49	50576	2224
12	949462	997771	951690	48309	48	50537	2228
13	949500	997766	951733	48266	47	50499	2233
14	949538	997762	951776	48223	46	50461	2237
15	949577	997758	951818	48181	45	50422	2241
16	949615	997754	951861	48138	44	50384	2245
17	949653	997750	951903	48096	43	50346	2249
18	949691	997746	951945	48054	42	50308	2253
19	949730	997741	951988	48011	41	50269	2258
20	949768	997737	952030	47969	40	50231	2262
21	949806	997733	952072	47927	39	50193	2266
22	949844	997729	952115	47884	38	50155	2270
23	949882	997725	952157	47842	37	50117	2274
24	949920	997720	952199	47800	36	50079	2279
25	949958	997716	952241	47758	35	50041	2283
26	949996	997712	952283	47716	34	50003	2287
27	950034	997708	952325	47674	33	49965	2291
28	950072	997704	952367	47632	32	49927	2295
29	950109	997699	952409	47590	31	49895	2300
30	950147	997695	952451	47548	30	49852	2304

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18	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.com.
30	950147	997695	952451	47548	30	49852	2304
31	950185	997691	952493	47506	29	49814	2308
32	950223	997687	952535	47464	28	49776	2312
33	950260	997682	952577	47422	27	49739	2317
34	950298	997678	952619	47380	26	49701	2321
35	950335	997674	952661	47338	25	49664	2325
36	950373	997670	952703	47296	24	49626	2329
37	950411	997665	952745	47254	23	49588	2334
38	950448	997661	952786	47213	22	49551	2338
39	950485	997657	952828	47171	21	49514	2342
40	950523	997653	952870	47129	20	49476	2346
41	950560	997648	952911	47088	19	49439	2351
42	950598	997644	952953	47046	18	49401	2355
43	950635	997640	952995	47004	17	49364	2359
44	950672	997636	953036	46963	16	49327	2363
45	950709	997631	953078	46921	15	49290	2368
46	950747	997627	953119	46880	14	49252	2372
47	950784	997623	953161	46838	13	49215	2376
48	950821	997628	953202	46797	12	49178	2381
49	950858	997614	953243	46756	11	49141	2385
50	950895	997610	953285	46714	10	49104	2389
51	950932	997605	953326	46673	9	49067	2394
52	950969	997601	953367	46632	8	49030	2398
53	951006	997597	953409	46590	7	48993	2402
54	951043	997593	953450	46549	6	48956	2406
55	951080	997588	953491	46508	5	48919	2411
56	951117	997584	953532	46467	4	48882	2415
57	951153	997580	953573	46426	3	48846	2419
58	951190	997575	953615	46384	2	48809	2424
59	951227	997571	953656	46343	1	48772	2428
60	951264	997567	953697	46302	0	48735	2432
	Sine Compl.	Sine.	Tang. Compl.	Tang	71		

19	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine	Compl. arith.of Si.Com
0	951264	997567	953697	46302	60	48735	2432
1	951300	997562	953738	46261	59	48699	2437
2	951337	997558	953779	46220	58	48662	2441
3	951374	997555	953820	46179	57	48625	2446
4	951410	997549	953861	46138	56	48589	2450
5	951447	997545	953902	46098	55	48552	2454
6	951483	997542	953942	46057	54	48516	2459
7	951520	997536	953983	46016	53	48479	2463
8	951556	997532	954024	45975	52	48443	2467
9	951593	997527	954065	45934	51	48407	2472
10	951629	997523	954106	45893	50	48370	2476
11	951665	997518	954146	45853	49	48334	2481
12	951701	997514	954187	45812	48	48298	2485
13	951738	997510	954228	45771	47	48261	2489
14	951774	997505	954268	45731	46	48225	2494
15	951810	997501	954309	45690	45	48189	2498
16	951846	997496	954349	45650	44	48153	2503
17	951882	997492	954390	45609	43	48117	2507
18	951919	997488	954431	45569	42	48080	2511
19	951955	997483	954471	45528	41	48044	2516
20	951991	997479	954511	45488	40	48008	2520
21	952027	997474	954552	45447	39	47972	2525
22	952063	997470	954592	45407	38	47936	2529
23	952098	997465	954633	45366	37	47901	2534
24	952134	997461	954673	45326	36	47865	2538
25	952170	997456	954713	45286	35	47829	2543
26	952206	997452	954754	45245	34	47793	2547
27	952242	997448	954794	45205	33	47757	2551
28	952278	997443	954834	45165	32	47721	2556
29	952313	997439	954874	45125	31	47686	2560
30	952349	997434	954914	45085	30	47650	2565

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19	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith. of Sine.	Compl. arith. of Si.com.
30	952349	997434	954914	45085	30	47650	2565
31	952385	997430	955955	45045	29	47614	2569
32	952420	997425	955995	45004	28	47579	2574
33	952456	997421	955035	44964	27	47543	2578
34	952491	997416	955075	44924	26	47508	2583
35	952527	997412	955115	44884	25	47472	2587
36	952562	997407	955155	44844	24	47437	2592
37	952598	997403	955195	44804	23	47401	2596
38	952633	997398	955235	44764	22	47366	2601
39	952669	997394	955275	44724	21	47330	2605
40	952704	997389	955314	44685	20	47295	2610
41	952739	997385	955354	44645	19	47260	2614
42	952775	997380	955394	44605	18	47224	2619
43	952810	997376	955434	44565	17	47189	2623
44	952845	997371	955474	44525	16	47154	2628
45	952880	997367	955513	44486	15	47119	2632
46	952916	997362	955553	44446	14	47083	2637
47	952951	997358	955593	44406	13	47048	2641
48	952986	997353	955632	44367	12	47013	2646
49	953021	997348	955672	44327	11	46978	2651
50	953056	997344	955712	44287	10	46943	2655
51	953091	997339	955751	44248	9	46908	2660
52	953126	997335	955791	44208	8	46873	2664
53	953161	997330	955830	44169	7	46838	2669
54	953196	997326	955870	44129	6	46803	2673
55	953231	997321	955909	44090	5	46768	2678
56	953266	997316	955949	44050	4	46733	2683
57	953300	997312	955988	44011	3	46699	2687
58	953335	997307	956027	43972	2	46664	2692
59	953376	997303	956067	43932	1	46629	2696
60	953405	997298	956106	43890	0	46594	2701
	Sine Compl.	Sine.	Tang. Compl.	Tang	70		

20	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith. of Sine	Compl. arith. of Si. Com
0	953405	997298	956106	43893	60	46594	2701
1	953439	997293	956145	43854	59	46560	2706
2	953474	997289	956185	43814	58	46525	2710
3	953509	997284	956224	43775	57	46590	2715
4	953543	997280	956263	43736	56	46456	2719
5	953578	997275	956302	43697	55	46421	2724
6	953612	997270	956341	43658	54	46387	2729
7	953647	997266	956381	43618	53	46352	2733
8	953681	997261	956420	43579	52	46318	2738
9	953716	997257	956459	43540	51	46283	2742
10	953750	997252	956498	43501	50	46249	2747
11	953785	997247	956537	43462	49	46214	2752
12	953819	997243	956576	43423	48	46180	2756
13	953353	997238	956615	43384	47	46146	2761
14	053838	997233	956554	43345	46	46111	2766
15	953922	997229	956693	43306	45	36077	2770
16	953956	997224	956732	43267	44	46043	2775
17	953990	997219	956770	43229	43	46009	2780
18	954024	997215	956809	43190	42	45975	2784
19	954059	997210	956848	43151	41	45940	2789
20	954093	997205	956887	43112	40	45906	2794
21	954127	997201	956926	43073	39	45872	2798
22	954161	997196	956964	43035	38	45838	2803
23	954195	997191	957003	42996	37	45804	2808
24	954229	997187	957042	42957	36	45770	2812
25	954263	997182	957080	42919	35	45736	2817
26	954297	997177	957119	42880	34	45702	2822
27	954331	997172	957158	42841	33	45668	2827
28	954364	997168	957196	42803	32	45635	2831
29	954398	997163	957235	42764	31	45601	2836
30	954432	997158	957273	42726	30	45567	2841

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20	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si. com
30	954432	997158	957273	42726	30	45567	2841
31	954466	997154	957312	42687	29	45533	2845
32	954500	997149	957350	42649	28	45499	2850
33	954533	997144	957389	42610	27	45466	2855
34	954567	997139	957427	42572	26	45432	2860
35	954601	997135	957466	42533	25	45398	2864
36	954634	997130	957504	42495	24	45365	2869
37	954668	997125	957542	42457	23	45331	2874
38	954701	997120	957581	42418	22	45298	2879
39	954735	997116	957619	42380	21	45264	2883
40	954768	997111	957657	42342	20	45231	2888
41	954802	997105	957695	42304	19	45197	2893
42	954835	997101	957734	42265	18	45164	2898
43	954869	997097	957772	42227	17	45130	2902
44	954902	997092	957810	42189	16	45097	2907
45	954936	997087	957848	42151	15	45063	2912
46	954969	997082	957886	42113	14	45030	2917
47	955002	997077	957924	42075	13	44997	2922
48	955035	997073	957962	42037	12	44964	2926
49	955069	997068	958000	41999	11	44930	2931
50	955102	997063	958038	41961	10	44897	2936
51	955135	997058	958076	41923	9	44864	2941
52	955168	997053	958114	41885	8	44831	2946
53	955201	997049	958152	41847	7	44798	2950
54	955234	997044	958190	41809	6	44765	2955
55	955268	997039	958228	41771	5	44731	2960
56	955301	997034	958266	41733	4	44698	2965
57	955334	997029	958304	41695	3	44665	2970
58	955367	997024	958342	41657	2	44632	2975
59	955399	997020	958379	41620	1	44600	2979
60	955432	997015	958417	41582	0	44567	2984

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21	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	955432	997015	958417	41582	60	44567	2984
1	955465	997010	958455	41544	59	44534	2989
2	955498	997005	958493	41506	58	44501	2994
3	955531	997000	958530	41469	57	44468	2999
4	955564	996995	958568	41431	56	44435	3004
5	955597	996990	958606	41393	55	44402	3009
6	955629	996986	958643	41356	54	44370	3014
7	955662	996981	958681	41318	53	44337	3018
8	955695	996976	958719	41280	52	44304	3023
9	955727	996971	958756	41243	51	44272	3028
10	955760	996966	958794	41205	50	44239	3033
11	955793	996961	958831	41168	49	44206	3038
12	955825	996956	958869	41130	48	44174	3043
13	955858	996951	958906	41093	47	44141	3048
14	955890	996946	958944	41055	46	44109	3053
15	955923	996941	958981	41018	45	44076	3058
16	955955	996937	959018	40981	44	44044	3062
17	955988	996932	959056	40943	43	44011	3067
18	956020	996927	959093	40906	42	43979	3072
19	956053	996922	959130	40869	41	43946	3077
20	956085	996917	959168	40831	40	43914	3082
21	956117	996912	959205	40794	39	43882	3087
22	956150	996907	959242	40757	38	43849	3092
23	956182	996902	959279	40722	37	43817	3097
24	956214	996897	959317	40682	36	43785	3102
25	956246	996892	959354	40645	35	43753	3107
26	956279	996887	959391	40608	34	43720	3112
27	956311	996882	959428	40571	33	43688	3117
28	956343	996877	959465	40534	32	43656	3122
29	956375	996872	959502	40497	31	43624	3127
30	956407	996867	959539	40460	30	43592	3132
	Sine Compl.	Sine.	Tang. Compl.	Tang	68		

21	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	956407	996867	959539	40460	30	43592	3132
31	956439	996862	959576	40423	29	43560	3137
32	956471	996857	959613	40386	28	43528	3142
33	956503	996852	959650	40349	27	43496	3147
34	956535	996847	959687	40312	26	43464	3152
35	956567	996842	959724	40275	25	43432	3157
36	956599	996837	959761	40238	24	43400	3162
37	956631	996832	959798	40201	23	43368	3167
38	956663	996827	959835	40164	22	43335	3172
39	956695	996822	959872	40127	21	43304	3177
40	956726	996817	959909	40090	20	43273	3182
41	956758	996812	959945	40054	19	43241	3187
42	956790	996807	959982	40017	18	43209	3192
43	956822	996802	960019	39980	17	43177	3197
44	956853	996797	960056	39943	16	43146	3202
45	956885	996792	960092	39907	15	43114	3207
46	956917	996787	960129	39870	14	43082	3212
47	956948	996782	960166	39833	13	43051	3217
48	956980	996777	960202	39797	12	43019	3222
49	957012	996772	960239	39760	11	42988	3227
50	957043	996767	960276	39723	10	42956	3232
51	957075	996762	960312	39587	9	42924	3237
52	957106	996757	960349	39650	8	42893	3242
53	957138	996752	960385	39614	7	42861	3247
54	957169	996747	960422	39577	6	42830	3252
55	957200	996742	960458	39541	5	42799	3257
56	957232	996736	960495	39504	4	42767	3263
57	957263	996731	960531	39468	3	42736	3268
58	957294	996726	960568	39431	2	42705	3273
59	957326	996721	960604	39395	1	42673	3278
60	957357	996716	960640	39359	0	42642	3283
	Sine Compl.	Sine	Tang. Compl.	Tang 68			

22	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	957357	996716	960640	39359	60	42642	3283
1	957388	996711	960677	39322	59	42611	3288
2	957420	996706	960713	39286	58	42579	3293
3	957451	996701	960749	39250	57	42548	3298
4	957482	996696	960785	39213	56	42517	3303
5	957513	996691	960822	39177	55	42486	3308
6	977544	996685	960858	39141	54	42455	3314
7	977575	996680	960895	39104	53	42424	3319
8	977606	996675	960931	39068	52	42393	3324
9	977637	996670	960967	39032	51	42362	3329
10	957668	996665	961033	38996	50	42331	3334
11	957699	996660	961039	38960	49	42300	3339
12	957730	996655	961075	38924	48	42269	3344
13	957761	996649	961118	38888	47	42238	3350
14	957792	996644	961111	38851	46	42207	3355
15	957823	996639	961148	38815	45	42176	3360
16	957854	996634	961220	38779	44	42145	3365
17	957885	996629	961256	38743	43	42114	3370
18	957916	996624	961292	38707	42	42083	3375
19	957946	996618	961328	38671	41	42053	3381
20	957977	996613	961364	38635	40	42022	3386
21	958008	996608	961400	38600	39	41991	3391
22	958039	996603	961435	38564	38	41960	3396
23	958069	996598	961471	38528	37	41930	3401
24	958100	996592	961507	38492	36	41899	3407
25	958131	996587	961543	38456	35	41868	3412
26	958161	996582	961579	38420	34	41838	3417
27	958192	996577	961615	38384	33	41807	3422
28	958222	996571	961650	38349	32	41777	3428
29	958253	996566	961686	38313	31	41746	3433
30	958283	996561	961722	38277	30	41716	3438
	Sine Compl	Sine.	Tang. Compl.	Tang	67		

22	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Compl. arith.of Si.com
30	958283	996561	961722	38277	30	41716	3438
31	958314	996556	961758	38241	29	41685	3443
32	958344	996551	961793	38206	28	41655	3448
33	958375	996545	961829	38170	27	41624	3454
34	958405	996540	961865	38134	26	41594	3459
35	958436	996535	961900	38099	25	41563	3464
36	958466	996530	961936	38063	24	41533	3469
37	958496	996524	961972	38027	23	41503	3475
38	958527	996519	962007	37992	22	41572	3480
39	958557	996514	962043	37956	21	41442	3485
40	958587	996508	962078	37921	20	41412	3491
41	958617	996503	962114	37885	19	41382	3496
42	958648	996498	962149	37850	18	41351	3501
43	958678	996493	962185	37814	17	41321	3506
44	958708	996487	962220	37779	16	41291	3512
45	958738	996482	962256	37743	15	41261	3517
46	958768	996477	962291	37708	14	41231	3522
47	958798	996471	962326	37673	13	41201	3528
48	958828	996466	962362	37637	12	41171	3533
49	958858	996461	962397	37602	11	41141	3538
50	958888	996456	962432	37567	10	41111	3543
51	958918	996450	962468	37531	9	41081	3549
52	958948	996445	962503	37496	8	41051	3554
53	958978	996440	962538	37461	7	41021	3759
54	959008	996434	962574	37425	6	40991	3565
55	959038	996429	962609	37390	5	40961	3570
56	959068	996424	962644	37355	4	40931	3575
57	959098	996418	962679	37320	3	40901	3581
58	959128	996413	962714	37285	2	40871	3586
59	959158	996407	962750	37249	1	40841	3592
60	959187	996402	962785	37214	0	40812	3597
	Sine Compl.	Sine.	Tang. Compl.	Tang	67		

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23	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith. of Si.com.
0	959187	996402	962785	37214	60	40812	3597
1	959217	996397	962820	37179	59	40782	3602
2	959247	996391	962855	37144	58	40752	3608
3	959276	996386	962890	37109	57	40723	3613
4	959306	996381	962925	37074	56	40693	3618
5	959336	996375	962960	37039	55	40663	3624
6	959365	996370	962995	37004	54	40634	3629
7	959395	996364	963030	36969	53	40604	3635
8	959425	996359	963065	36934	52	40574	3640
9	959454	996354	963100	36899	51	40545	3645
10	959484	996348	963135	36864	50	40515	3651
11	959513	996343	963170	36829	49	40486	3656
12	959543	996337	963205	36794	48	40456	3662
13	959572	996332	963240	36759	47	40427	3667
14	959602	996327	963275	36724	46	40397	3672
15	959621	996321	963309	36690	45	40368	3678
16	959660	999316	963344	36655	44	40339	3683
17	959690	999310	963379	36620	43	40309	3689
18	959719	999305	963414	36585	42	40285	3694
19	959748	999299	963449	36550	41	40251	3700
20	959778	999294	963483	36516	40	40221	3705
21	959807	996289	963518	36481	39	40192	3710
22	959836	996283	963553	36446	38	40163	3716
23	959866	996278	963587	36412	37	40133	3721
24	959895	996272	963622	36377	36	40104	3727
25	959924	996267	963657	36342	35	40075	3732
26	959953	996261	963691	36308	34	40046	3738
27	959982	996256	963726	36273	33	40017	3743
28	960011	996250	963761	36238	32	39988	3749
29	960040	996245	963795	36204	31	39959	3754
30	960069	996239	963830	36169	30	39930	3760
	Sine Compl.	Sine.	Tang. Compl.	Tang	66		

23	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith.of Si. com
30	960069	996239	963830	36169	30	39930	3760
31	960099	996234	963864	35135	29	39900	3765
32	960128	996228	963899	35100	28	39871	3771
33	960157	996223	963933	35066	27	39842	3776
34	960186	996217	963968	35031	26	39814	3782
35	960214	996212	964002	35997	25	39785	3787
36	960243	996206	964037	35962	24	39756	3793
37	960272	996201	964071	35928	23	39727	3798
38	960301	996195	964105	35894	22	39698	3804
39	960330	996190	964140	35859	21	30669	3809
40	960359	996184	964174	35825	20	39640	3815
41	960388	996179	964209	35790	19	39611	3820
42	960416	996173	964243	35756	18	39583	3826
43	960445	996168	964277	35722	17	39554	3832
44	960474	996162	964312	35687	16	39525	3837
45	960503	996156	964346	35653	15	39496	3843
46	960531	996151	964380	35619	14	39468	3848
47	960560	996145	964414	35585	13	39439	3854
48	960587	996140	964449	35550	12	39410	3859
49	960617	996134	964483	35516	11	39382	3865
50	960646	996129	964517	35482	10	39353	3870
51	960675	996123	964551	35448	9	39324	3876
52	960703	996117	964585	35414	8	39296	3882
53	960732	996112	964619	35380	7	39267	3887
54	960760	996106	964654	35346	6	39239	3893
55	960789	996101	964688	35311	5	39210	3898
56	960817	996095	964722	35277	4	39182	3904
57	960846	995089	964756	35243	3	39153	3910
58	960874	996084	964790	35209	2	39125	3915
59	960902	996078	964824	35175	1	39097	3921
60	960931	996073	964858	35141	0	39068	3926)

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 66 | | |

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24	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si. com.
0	960931	996073	964858	35141	60	39068	3926
1	9609.9	996067	964892	35107	59	39240	3932
2	960988	996061	964926	35073	58	39011	3938
3	961016	996056	964960	35039	57	38983	3943
4	961044	996050	964994	35005	56	38955	3949
5	961072	996044	965028	34971	55	38927	3955
6	961101	996039	965061	34938	54	38898	3960
7	961129	996033	965095	34904	53	38870	3966
8	961157	996027	965129	34870	52	38842	3972
9	961185	996022	965163	34836	51	38814	3977
10	961213	996016	965197	34802	50	38786	3983
11	961242	996010	965231	34768	49	38757	3989
12	961270	996005	965265	34734	48	38729	3994
13	961298	995999	965298	34701	47	38701	4000
14	961326	995993	965332	34667	46	38673	4006
15	961354	995988	965366	34633	45	38645	4011
16	961382	995982	965400	34599	44	38617	4017
17	961410	995976	965433	34566	43	38589	4023
18	961438	995976	965467	34532	42	38561	4028
19	961466	995965	965501	34498	41	38533	4034
20	961494	995959	965534	34465	40	38505	4040
21	961522	995953	965568	34431	39	38477	4046
22	961550	995948	965602	34397	38	38449	4051
23	961578	995942	965635	34364	37	38421	4057
24	961605	995936	965669	34330	36	38394	4063
25	961633	995931	965702	34297	35	38366	4068
26	961661	995925	965736	34263	34	38338	4074
27	961689	995919	965769	34230	33	38310	4080
28	961717	995913	965803	34196	32	38282	4086
29	961744	995908	965836	34163	31	38255	4091
30	961772	995902	965870	34129	30	38227	4097

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 65 | | |

24	Sine.	Sine Compl.	Tang	Tang. Compl		Compl. arith. of Sine	Compl. arith. of Si. com.
30	961772	995902	965870	34129	30	38227	4097
31	961800	995896	965903	34096	29	38199	4103
32	961828	995890	965937	34062	28	38171	4109
33	961855	995885	965970	34029	27	38144	4115
34	961883	995879	966004	33995	26	38116	4120
35	961911	995873	966037	33962	25	38088	4126
36	961938	995867	966070	33929	24	38061	4132
37	961966	995861	966104	33895	23	38033	4138
38	961993	995856	966137	33862	22	38006	4143
39	962021	995850	966171	33828	21	37978	4149
40	962048	995844	966204	33795	20	37951	4155
41	962076	995838	966237	33762	19	37923	4161
42	962103	995832	966270	33729	18	37896	4167
43	962131	995827	966304	33695	17	37868	4172
44	962158	995821	966337	33662	16	37842	4178
45	962186	995815	966370	33629	15	37813	4184
46	962213	995809	966403	33596	14	37786	4190
47	962240	995803	966437	33562	13	37759	4196
48	962268	995797	966470	33529	12	37731	4202
49	962295	995792	966503	33496	11	37704	4207
50	962322	995786	966536	33463	10	37677	4213
51	962350	995780	966569	33430	9	37649	4219
52	962377	995774	966602	33397	8	37622	4225
53	962404	995768	966635	33364	7	37595	4231
54	962431	995762	966669	33330	6	37568	4237
55	962459	995756	966702	33297	5	37540	4243
56	962486	995751	966735	33264	4	37513	4248
57	962513	995745	966768	33231	3	37486	4254
58	962540	995739	966801	33198	2	37459	4260
59	962567	995733	966834	33165	1	37432	4266
60	962594	995727	966867	33132	0	37405	4272
	Sine Compl.	Sine.	Tang. Compl.	Tang	65		

25	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith of Si. com.
0	962594	995727	966867	33132	60	37405	4272
1	962621	995721	966900	33099	59	37378	4278
2	962648	995715	966933	33066	58	37351	4284
3	962676	995709	966966	33033	57	37323	4290
4	962703	995703	966999	33000	56	37296	4296
5	962730	995698	967031	32968	55	37269	4301
6	962757	995692	967064	32935	54	37242	4307
7	962783	995686	967097	32902	53	37216	4313
8	962810	995680	967130	32869	52	37189	4319
9	962837	995674	967163	32836	51	37162	4325
10	962864	995668	967196	32803	50	37135	4331
11	962891	995662	967229	32770	49	37108	4337
12	962918	995656	967261	32738	48	37081	4343
13	962945	995650	967294	32705	47	37054	4349
14	962972	995644	967327	32672	46	37027	4355
15	962998	995638	967360	32639	45	37001	4361
16	963025	995632	967392	32607	44	36974	4367
17	963052	995626	967425	32574	43	36947	4373
18	963070	995620	967458	32541	42	36920	4379
19	963105	995614	967491	32508	41	36984	4385
20	963132	995608	967523	32476	40	36867	4391
21	963159	995602	967556	32443	39	36840	4397
22	963185	995596	967589	32410	38	36814	4403
23	963212	995590	967621	32378	37	36787	4429
24	963239	995584	967654	32345	36	36760	4415
25	963265	995578	967686	32313	35	36734	4421
26	963292	995572	967719	32280	34	36707	4427
27	963318	995566	967752	32247	33	36681	4433
28	963345	995560	967784	32215	32	36654	4439
29	963371	995554	967817	32182	31	36628	4445
30	963398	995548	967849	32150	30	36601	4451
	Sine Compl.	Sine.	Tang. Compl.	Tang	64		

25	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si. com.
30	963398	995548	967849	32150	30	36601	4451
31	963424	995542	967882	32117	29	36575	4457
32	963451	995536	967914	32085	28	36548	4463
33	963477	995530	967947	32052	27	36522	4469
34	963504	995524	967979	32020	26	36495	4475
35	963530	995518	968011	31988	25	36469	4481
36	963556	995512	968044	31955	24	36443	4487
37	963583	995506	968076	31923	23	36416	4493
38	963609	995500	968109	31890	22	36390	4499
39	963636	995494	968141	31858	21	36363	4505
40	963662	995488	968173	31826	20	36337	4511
41	963688	995482	968206	31793	19	36311	4517
42	963714	995476	968238	31761	18	36285	4523
43	963741	995470	968270	31729	17	36258	4529
44	963767	995464	968303	31696	16	36232	4535
45	963793	995457	968335	31664	15	36206	4542
46	963819	995451	968367	31632	14	36180	4548
47	963845	995445	968400	31599	13	36154	4554
48	963871	995439	968432	31567	12	36128	4560
49	963898	995433	968464	31535	11	36101	4566
50	963924	995427	968496	31503	10	36075	4572
51	963950	995421	968529	31470	9	36049	4578
52	963976	995415	968561	31438	8	36023	4584
53	964002	995409	968593	31406	7	35997	4590
54	964028	995402	968625	31374	6	35971	4597
55	964059	995396	968657	31342	5	35945	4603
56	964080	995390	968689	31310	4	35919	4609
57	964106	995384	968721	31278	3	35893	4615
58	964132	995378	968754	31245	2	35867	4621
59	964158	995372	968786	31213	1	35841	4627
60	964184	995366	968818	31181	0	35815	4633
	Sine Compl.	Sine.	Tang. Compl.	Tang	64		

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26	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.
0	964184	995366	968818	31181	60	35815	4633
1	964210	995359	968850	31149	59	35789	4640
2	964235	995353	968882	31117	58	35764	4646
3	964261	995347	968914	31085	57	35738	4652
4	964287	995341	968946	31053	56	35712	4658
5	964313	995335	968978	31021	55	35686	4664
6	964339	995328	969010	30989	54	35660	4671
7	964365	995322	969042	30957	53	35634	4677
8	964390	995316	969074	30925	52	35609	4683
9	964416	995310	969106	30893	51	35583	4689
10	964442	995304	969138	30861	50	35557	4695
11	964467	995297	969170	30830	49	35532	4702
12	964493	995291	969201	30798	48	35506	4708
13	964519	995285	969233	30766	47	35480	4714
14	964544	995279	969265	30734	46	35455	4720
15	964570	995273	969297	30702	45	35429	4726
16	964596	995266	969329	30670	44	35403	4733
17	964621	995260	969361	30638	43	35378	4739
18	964647	995254	969392	30607	42	35352	4745
19	964672	995248	969424	30575	41	35327	4751
20	964698	995241	969456	30543	40	35301	4758
21	964723	995235	969488	30511	39	35276	4764
22	964749	995229	969520	30479	38	35250	4770
23	964774	995223	969551	30448	37	35225	4776
24	964800	995216	969583	30416	36	35199	4783
25	964825	995210	969615	30384	35	35174	4789
26	964858	995204	969646	30353	34	35148	4795
27	964876	995197	969678	30321	33	35123	4802
28	964902	995191	969710	30289	32	35097	4808
29	964927	995185	969741	30258	31	35072	4814
30	964952	995179	969772	30226	30	35047	4820
	Sine Compl.	Sine.	Tang. Compl.	Tang	63		

26	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl arith. of Sine	Comp arith.o Si.com
30	964952	995179	969773	30226	30	35047	4820
31	964978	995172	969805	30194	29	35021	4827
32	965003	995166	969836	30163	28	34996	4833
33	965028	995160	969868	30131	27	34971	4839
34	965053	995153	969900	30099	26	34946	4846
35	965079	995147	969931	30068	25	34920	4852
36	965104	995141	969963	30036	24	34895	4858
37	965129	995134	969994	30005	23	34870	4865
38	965154	995128	970026	29973	22	34845	4871
39	965180	995122	970057	29942	21	34819	4877
40	965205	995115	970089	29910	20	34794	4884
41	965230	995109	970120	29879	19	34769	4890
42	965255	995103	970152	29847	18	34744	4896
43	965280	995096	970183	29816	17	34719	4903
44	965305	995090	970215	29784	16	34694	4909
45	965330	995084	970246	29753	15	34669	4915
46	965355	995077	970278	29721	14	34644	4922
47	965380	995071	970309	29690	13	34619	4928
48	965405	995065	970340	29659	12	34594	4935
49	965430	995058	970371	29627	11	34569	4941
50	965455	995052	970403	29596	10	34544	4947
51	965480	995045	970434	29565	9	34519	4954
52	965505	995039	970466	29533	8	34494	4960
53	965530	995033	970497	29502	7	34469	4966
54	965555	995026	970528	29471	6	34444	4973
55	965580	995020	970560	29439	5	34419	4979
56	965605	995013	970591	29408	4	34394	4986
57	965630	995007	970622	29377	3	34369	4992
58	965655	995000	970654	29345	2	34344	4999
59	965679	995994	970685	29314	1	34320	5005
60	965704	995988	970716	29283	0	34295	5011
	Sine Compl.	Sine.	Tang. Compl	Tang	63		

27	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith. of Sine	Compl. arith. of Si.Com
0	965704	994988	970716	29283	60	34295	5011
1	965729	994981	970747	29252	59	34270	5018
2	965754	994975	970779	29220	58	34245	5024
3	965778	994968	970810	29189	57	34221	5031
4	965803	994952	970841	29158	56	34196	5037
5	955828	994955	970872	29127	55	34171	5044
6	965853	994949	970903	29096	54	34146	5050
7	965877	994942	970934	29065	53	34122	5057
8	965902	994936	970966	29033	52	34097	5063
9	955927	994929	970997	29002	51	34072	5070
10	965951	994923	971028	28971	50	34018	5076
11	965976	994917	971059	28940	49	34023	5083
12	966000	994910	971090	28909	48	33999	5089
13	966025	994904	971121	28876	47	33974	5095
14	066050	994897	971152	28847	46	33949	5102
15	966074	994891	971183	28816	45	33925	5108
16	966099	994884	971214	28705	44	33900	5115
17	966123	994877	971245	28754	43	33876	5122
18	966148	994871	971276	28723	42	33851	5128
19	966172	994864	971307	28692	41	33827	5135
20	966197	994858	971338	28661	40	33802	5141
21	966221	994851	971369	28630	39	33778	5148
22	966245	994845	971400	28591	38	33754	5154
23	966270	994838	971431	28568	37	33729	5161
24	966294	994832	971462	28537	36	33705	5167
25	966319	994825	971493	28506	35	33681	5174
26	966343	994819	971524	28475	34	33656	5180
27	966367	994812	971555	28444	33	33632	5187
28	966391	994806	971585	28414	32	33608	5193
29	966416	994799	971616	28383	31	33583	5200
30	966440	994792	971647	28352	30	33559	5207

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 62 | | |

27	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Comp. arith.of Si.com
30	966440	994792	971647	28352	30	33559	5207
31	966464	994786	971678	28321	29	33532	5213
32	966489	994779	971709	28290	28	33510	5220
33	966513	994773	971740	28259	27	33486	5226
34	966537	994766	971770	28229	26	33462	5233
35	966561	994759	971801	28198	25	33438	5240
36	966585	994753	971832	28167	24	33414	5246
37	966610	994746	971863	28136	23	33389	5253
38	966634	994740	971894	28105	22	33365	5259
39	966658	994733	971924	28075	21	33341	5266
40	966682	994725	971955	28044	20	33317	5273
41	966706	994720	971986	28013	19	33293	5279
42	966730	994713	972016	27983	18	33269	5286
43	966754	994707	972047	27952	17	33245	5293
44	966778	994700	972078	27921	16	33221	5299
45	966802	994693	972108	27891	15	33197	5306
46	966826	994687	972139	27860	14	33173	5312
47	966850	994680	972170	27829	13	33149	5319
48	966874	994673	972200	27799	12	33125	5326
49	969898	994667	972231	27768	11	33101	5332
50	966922	994660	972262	27737	10	33077	5339
51	966946	994653	972292	27707	9	33053	5346
52	966970	994647	972323	27676	8	33029	5352
53	966994	994640	972353	27646	7	33005	5359
54	967018	994633	972384	27615	6	32981	5366
55	967041	994627	972414	27585	5	32958	5372
56	967067	994620	972445	27554	4	32934	5379
57	967089	994613	972475	27524	3	32910	5386
58	967113	994606	972506	27493	2	32886	5393
59	967137	994600	972536	27463	1	32862	5399
60	967160	994594	971567	27432	0	32839	5406
	Sine Compl	Sine.	Tang. Compl.	Tang	62		

28	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.Com
0	967160	994593	972567	27432	60	32839	5406
1	967184	994586	972597	27402	59	32815	5413
2	967208	994580	972628	27371	58	32791	5419
3	967232	994573	972658	27341	57	32767	5426
4	967255	994566	972689	27310	56	32744	5433
5	967279	994559	972719	27280	55	32720	5440
6	967303	994553	972750	27249	54	32696	5446
7	967326	994546	972780	27219	53	32673	5453
8	967350	994539	972810	27189	52	32649	5460
9	967374	994532	972841	27158	51	32625	5467
10	967397	994526	972871	27128	50	32602	5473
11	967421	994519	972901	27098	49	32578	5480
12	967444	994512	972932	27067	48	32555	5487
13	967468	994505	972962	27037	47	32531	5494
14	067491	994498	972992	27007	46	32508	5501
15	967515	994492	973023	26976	45	32484	5507
16	967530	994485	973053	26946	44	32461	5514
17	967562	994478	973083	26916	43	32437	5521
18	967585	994471	973114	26885	42	32414	5528
19	967609	994465	973144	26855	41	32390	5534
20	967632	994458	973174	26825	40	32367	5541
21	967656	994451	973204	26795	39	32343	5548
22	967679	994444	973235	26764	38	32320	5555
23	967703	994437	973265	26734	37	32296	5562
24	967726	994430	973295	26704	36	32273	5569
25	967749	994424	973325	26674	35	32250	5575
26	967773	994417	973355	26644	34	32226	5582
27	967796	994410	973386	26613	33	32203	5589
28	967819	994403	973416	26583	32	32180	5596
29	967843	994396	973446	26553	31	32156	5603
30	967866	994389	973476	26523	30	32133	5610

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 61 | | |

28	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.com.
30	967866	994389	973476	26523	30	32133	5610
31	967889	994382	973506	26493	29	32110	5617
32	967912	994376	973536	26463	28	32087	5623
33	967936	994369	973566	26433	27	32063	5630
34	967959	994362	973596	26403	26	32040	5637
35	967982	994355	973626	26373	25	32017	5644
36	968005	994348	973656	26343	24	31994	5651
37	968028	994341	973687	26312	23	31971	5658
38	968051	994334	973717	26281	22	31948	5665
39	968075	994327	973747	26252	21	31924	5672
40	968098	994321	973777	26222	20	31901	5678
41	968121	994314	973807	26192	19	31878	5685
42	968144	994307	973837	26162	18	31855	5692
43	968167	994300	973867	26132	17	31832	5699
44	968190	994293	973897	26102	16	31809	5706
45	968213	994286	973927	26072	15	31786	5713
46	968236	994279	973957	26042	14	31763	5720
47	968259	994272	973986	26013	13	31740	5727
48	968282	994265	974016	25983	12	31717	5734
49	968305	994258	974046	25953	11	31694	5741
50	968328	994251	974076	25913	10	31671	5748
51	968351	994244	974106	25893	9	31648	5755
52	968374	994237	974136	25863	8	31625	5762
53	968397	994230	974166	25833	7	31602	5769
54	968420	994223	974196	25803	6	31579	5776
55	968442	994216	974226	25773	5	31557	5783
56	968465	994209	974255	25744	4	31534	5790
57	968488	994202	974285	25714	3	31511	5797
58	968511	994195	974315	25684	2	31488	5804
59	968534	994188	974345	25654	1	31465	5811
60	968557	994181	974375	25624	0	31442	5818

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 61 |

29	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si. com.	29
0	968557	994181	974375	25624	60	31442	5818	30
1	968579	994174	974404	25595	59	31420	5825	31
2	968602	994167	974434	25565	58	31397	5832	32
3	968625	994160	974454	25535	57	31374	5839	
4	968648	994153	974494	25505	56	31351	5846	
5	968670	994146	974524	25475	55	31329	5853	
6	968693	994139	974553	25446	54	31306	5860	
7	968716	994132	974583	25416	53	31283	5867	
8	968738	994125	974613	25386	52	31261	5874	
9	968761	994118	974642	25357	51	31238	5881	
10	968784	994111	974672	25327	50	31215	5888	
11	968806	994104	974702	25297	49	31193	5895	
12	968829	994097	974731	25268	48	31170	5902	
13	968852	994090	974761	25238	47	31147	5909	
14	968874	994083	974791	25208	46	31125	5916	
15	968897	994076	974820	25179	45	31102	5923	
16	968919	994069	974850	25149	44	31080	5930	
17	968942	994062	974880	25119	43	31057	5937	
18	968964	994055	974909	25090	42	31035	5944	
19	968987	994048	974939	25060	41	31012	5951	
20	969009	994040	974968	25031	40	30990	5959	
21	969032	994033	974998	25001	39	30967	5966	
22	969054	994026	975028	24971	38	30945	5973	
23	969077	994019	975057	24942	37	30922	5980	
24	969099	994012	975087	24912	36	30900	5987	
25	969122	994005	975116	24883	35	30877	5994	
26	919144	993998	975146	24853	34	30855	6001	
27	969166	993991	975175	24824	33	30833	6008	
28	969189	993983	975205	24794	32	30810	6016	
29	969211	993976	975234	24765	31	30788	6023	
30	969233	993969	975264	24735	30	30766	6030	
	Sine Compl.	Sine.	Tang. Compl.	Tang	60			

29	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.com.
30	969233	993969	975264	24735	30	30766	6030
31	969256	993962	975293	24706	29	30743	6037
32	969278	993955	975323	24676	28	30721	6044
33	969300	993948	975352	24647	27	30699	6051
34	969323	993941	975382	24617	26	30676	6058
35	969345	993933	975411	24588	25	30654	6066
36	969367	993926	975440	24559	24	30632	6073
37	969389	993919	975470	24529	23	30610	6080
38	969412	993912	975499	24500	22	30587	6087
39	969434	993905	975529	24470	21	30565	6094
40	969456	993897	975558	24441	20	30543	6102
41	969478	993890	975587	24412	19	30521	6109
42	969500	993883	975617	24382	18	30499	6116
43	969522	993876	975646	24353	17	30477	6123
44	969545	993869	975675	24324	16	30454	6130
45	969567	993861	975705	24294	15	30432	6138
46	969589	993854	975734	24265	14	30410	6145
47	969611	993847	975763	24236	13	30388	6152
48	969633	993840	975793	24206	12	30366	6159
49	969655	993833	975822	24177	11	30344	6167
50	969677	993825	975851	24148	10	30322	6174
51	969699	993818	975880	24119	9	30300	6181
52	969721	993811	975910	24089	8	30278	6188
53	969743	993804	975939	24060	7	30256	6196
54	969765	993796	975968	24031	6	30234	6203
55	969787	993789	975997	24002	5	30212	6210
56	959809	993782	976027	23972	4	30190	6217
57	969831	993774	976056	23943	3	30168	6225
58	969853	993767	976085	23914	2	30146	6232
59	969875	993760	976114	23885	1	30124	6239
60	969897	993753	976143	23856	0	30103	6246

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 60 | | |

30	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Compl. arith.of Si.com.
0	969897	993753	976143	23856	60	30103	6246
1	969918	993745	976173	23826	59	30081	6254
2	969940	993738	976202	23797	58	30059	6261
3	969962	993731	976231	23768	57	30037	6268
4	969984	993723	976260	23739	56	30015	6276
5	970006	993716	976289	23710	55	29993	6283
6	970028	993709	976318	23681	54	29971	6290
7	970049	993701	976347	23652	53	29950	6298
8	970071	993694	976377	23622	52	29928	6305
9	970093	993687	976406	23593	51	29906	6312
10	970115	993679	976435	23564	50	29884	6320
11	970136	993672	976464	23535	49	29863	6327
12	970158	993665	976493	23506	48	29841	6334
13	970180	993657	976522	23477	47	29819	6342
14	970201	993650	976551	23448	46	29798	6349
15	970223	993643	976580	23419	45	29776	6356
16	970245	993635	976609	23390	44	29754	6364
17	970266	993628	976638	23361	43	29733	6371
18	970288	993620	976667	23332	42	29711	6379
19	970310	993613	976696	23303	41	29689	6386
20	970331	993606	976725	23274	40	29668	6393
21	970353	993598	976754	23245	39	29646	6401
22	970374	993591	976783	23216	38	29625	6408
23	970396	993584	976812	23187	37	29603	6415
24	970417	993576	976841	23158	36	29582	6423
25	970439	993569	976870	23129	35	29560	6430
26	970460	993561	976899	23100	34	29539	6438
27	970482	993554	976928	23071	33	29517	6445
28	970503	993546	976957	23042	32	29496	6453
29	970525	993539	976985	23014	31	29474	6460
30	970546	993532	977014	22985	30	29453	6467
	Sine Compl.	Sine.	Tang. Compl.	Tang	59		

30	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si. com.
30	970546	993532	977014	22985	30	29453	6467
31	970568	993524	977043	22956	29	29431	6475
32	970589	993517	977072	22927	28	29410	6482
33	970611	993509	977101	22898	27	29388	6490
34	970632	993502	977130	22869	26	29367	6497
35	970653	993494	977159	22840	25	29346	6505
36	970675	993487	977188	22811	24	29324	6512
37	970696	993479	977216	22783	23	29303	6520
38	970718	993472	977245	22754	22	29281	6527
39	970739	993464	977274	22725	21	20260	6535
40	970760	993457	977303	22696	20	29239	6542
41	970781	993449	977332	22667	19	29218	6550
42	970803	993442	977360	22639	18	29196	6557
43	970824	993434	977389	22610	17	29175	6565
44	970845	993427	977418	22581	16	29154	6572
45	970866	993419	977447	22552	15	29133	6580
46	970888	993412	977475	22524	14	29111	6587
47	970909	993404	977504	22495	13	29090	6595
48	970930	993397	977533	22466	12	39069	6602
49	970951	993389	977562	22437	11	29048	6610
50	970972	993382	977590	22409	10	29027	6617
51	970994	993374	977619	22380	9	29005	6625
52	971015	993367	977648	22351	8	28984	6632
53	971036	993359	977676	22323	7	28963	6640
54	971057	993352	977705	22294	6	28942	6647
55	971078	993344	977734	22265	5	28921	6655
56	971099	993336	977762	22237	4	28900	6663
57	971120	993329	977791	22208	3	28879	6670
58	971141	993321	977820	22179	2	28858	6678
59	971162	993314	977848	22151	1	28837	6685
60	971183	993306	977877	22122	0	28816	6693
	Sine Compl.	Sine.	Tang. Compl.	Tang	59		

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31	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.
0	971183	993306	977877	22122	60	28816	6693
1	971204	993298	977905	22094	59	28795	6701
2	971225	993291	977934	22065	58	28774	6708
3	971246	993283	977963	22036	57	28753	6716
4	971267	993276	977991	22008	56	28732	6723
5	971288	993268	978020	21979	55	28711	6731
6	971309	993260	978048	21951	54	28690	6739
7	971330	993253	978077	21922	53	28669	6746
8	971351	993245	978106	21893	52	28648	6754
9	971372	993238	978134	21865	51	28627	6761
10	971393	993230	978163	21836	50	28606	6769
11	971414	993222	978191	21808	49	28585	6777
12	971435	993215	978220	21779	48	28564	6784
13	971456	993207	978248	21751	47	28543	6792
14	971476	993199	978277	21722	46	28523	6800
15	971497	993192	978305	21694	45	28502	6807
16	971518	993184	978334	21665	44	28481	6815
17	971539	993176	978362	21637	43	28460	6823
18	971560	993169	978391	21608	42	28439	6830
19	971580	993161	978419	21580	41	28419	6838
20	971601	993153	978447	21552	40	28398	6846
21	971622	993146	978476	21523	39	28377	6853
22	971643	993138	978504	21495	38	28356	6861
23	971663	993130	978533	21466	37	28336	6869
24	971684	993122	978561	21438	36	28315	6877
25	971705	993115	978590	21409	35	28294	6884
26	971725	993107	978618	21381	34	28274	6892
27	971746	993099	978646	21353	33	28253	6900
28	971767	993092	978675	21324	32	28232	6907
29	971787	993084	978703	21296	31	28212	6915
30	971808	993076	978731	21268	30	28191	6923
	Sine Compl.	Sine.	Tang. Compl.	Tang	58		

3 1	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si. com.
30	971808	993076	978731	21268	30	28191	6923
31	971829	993068	978760	21239	29	28170	6931
32	971849	993061	978788	21211	28	28150	6938
33	971870	993053	978816	21183	27	28129	6946
34	971890	993045	978845	21154	26	28109	6954
35	971911	993037	978873	21126	25	28088	6962
36	971931	993030	978901	21098	24	28068	6969
37	971952	993022	978930	21069	23	28047	6977
38	971973	993014	978958	21041	22	28027	6985
39	971993	993006	978986	21013	21	28006	6993
40	972013	992998	979015	20984	20	27986	7001
41	972034	992991	979043	20956	19	27965	7008
42	972054	992983	979071	20928	18	27945	7016
43	972075	992975	979099	20900	17	27924	7024
44	972095	992967	979128	20871	16	27904	7032
45	972116	992959	979156	20843	15	27883	7040
46	972136	992952	979184	20815	14	27863	7047
47	972157	992944	979212	20787	13	27842	7055
48	972177	992936	979241	20758	12	27822	7063
49	972197	992928	979269	20730	11	27802	7071
50	972218	992920	979297	20702	10	27781	7079
51	972238	992912	979325	20674	9	27761	7087
52	972258	992905	979353	20646	8	27741	7094
53	972279	992897	979381	20618	7	27720	7102
54	972299	992889	979410	20589	6	27700	7110
55	972319	992881	979438	20561	5	27680	7118
56	972340	992873	979466	20533	4	27660	7126
57	972360	992865	979494	20505	3	27639	7134
58	972380	992857	979522	20477	2	27619	7142
59	972400	992849	979550	20449	1	27599	7150
60	972420	992842	979578	20421	0	27579	7157
	Sine Compl.	Sine.	Tang. Compl.	Tang	58		

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32	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl arith. of Si. com
0	972420	992842	979578	20421	60	27579	7157
1	972441	992834	979607	20392	59	27558	7165
2	972461	992826	979635	20364	58	27538	7173
3	972481	992818	979663	20336	57	27518	7181
4	972501	992810	979691	20308	56	27498	7189
5	972521	992802	979719	20280	55	27478	7197
6	972542	992794	979747	20252	54	27457	7205
7	972562	992786	979775	20224	53	27437	7213
8	972582	992778	979803	20196	52	27417	7221
9	972602	992770	979831	20168	51	27397	7229
10	972622	992761	979859	20140	50	27377	7237
11	972642	992754	979887	20112	49	27357	7245
12	972662	992746	979915	20084	48	27337	7253
13	972682	992738	979943	20056	47	27317	7261
14	972702	992731	979971	20028	46	27297	7268
15	972722	992723	979999	20000	45	27277	7276
16	972742	992715	980027	19972	44	27257	7284
17	972762	992707	980055	19944	43	27237	7292
18	972782	992699	980083	19916	42	27217	7300
19	972802	992691	980111	19888	41	27197	7308
20	972822	992683	980139	19860	40	27177	7316
21	972842	992675	980167	19832	39	27157	7324
22	972862	992667	980195	19804	38	27137	7332
23	972882	992659	980223	19776	37	27117	7340
24	972902	992651	980251	19748	36	27097	7348
25	972922	992643	980279	19720	35	27077	7356
26	972942	992635	980307	19692	34	27057	7364
27	972961	992627	980335	19664	33	27037	7372
28	972981	992619	980362	19637	32	27018	7380
29	973001	992610	980390	19609	31	26998	7389
30	973021	992602	980418	19581	30	26978	7397
	Sine Compl.	Sine.	Tang. Compl.	Tang	57		

32	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.com.
30	973021	992602	980418	19581	30	26978	7397
31	973041	992594	980446	19553	29	26958	7405
32	973061	992586	980474	19525	28	26938	7413
33	973081	992578	980502	19497	27	26918	7421
34	973100	992570	980530	19469	26	26899	7429
35	973120	992562	980558	19441	25	26879	7437
36	973140	992554	980585	19414	24	26859	7445
37	973160	992546	980613	19386	23	26839	7453
38	973179	992538	980641	19358	22	26820	7461
39	973199	992530	980669	19330	21	26800	7469
40	973219	992522	980697	19302	20	26780	7477
41	973239	992514	980724	19275	19	26760	7485
42	973258	992505	980752	19247	18	26741	7494
43	973278	992497	980780	19219	17	26721	7502
44	973298	992489	980808	19191	16	26701	7510
45	973317	992481	980836	19163	15	26682	7518
46	973337	992473	980863	19136	14	26662	7526
47	973356	992465	980891	19108	13	26643	7534
48	973376	992457	980919	19080	12	26623	7542
49	973396	992449	980947	19052	11	26603	7550
50	973415	992442	980974	19025	10	26584	7559
51	973435	992432	981002	18997	9	26564	7567
52	973454	992424	981030	18969	8	26545	7575
53	973474	992416	981057	18942	7	26525	7583
54	973493	992408	981085	18914	6	26506	7591
55	973513	992400	981113	18886	5	26486	7599
56	973532	992391	981141	18858	4	26467	7608
57	973552	992383	981168	18831	3	26447	7616
58	973571	992375	981196	18803	2	26428	7624
59	973591	992376	981224	18775	1	26408	7632
60	973610	992359	981251	18748	0	26389	7640
	Sine Compl.	Sine.	Tang. Compl.	Tang	57		

33	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
0	973610	992359	981251	18748	60	26389	7640
1	973630	992350	981279	18720	59	26369	7649
2	973649	992342	981307	18692	58	26350	7657
3	973669	992334	981334	18665	57	26330	7665
4	973688	992326	981362	18637	56	26311	7673
5	973707	992318	981389	18610	55	26292	7681
6	973727	992309	981417	18582	54	26272	7692
7	973746	992301	981445	18554	53	26253	7698
8	973766	992293	981472	18527	52	26233	7706
9	973785	992285	981500	18499	51	26214	7714
10	973804	992276	981527	18472	50	26195	7723
11	973824	992268	981555	18444	49	26175	7731
12	973843	992260	981583	18416	48	26156	7739
13	973862	992252	981610	18389	47	26137	7747
14	973882	992243	981638	18361	46	26117	7756
15	973901	992235	981665	18334	45	26098	7764
16	973920	992227	981693	18306	44	26079	7772
17	973939	992218	981720	18279	43	26060	7781
18	973959	992210	981748	18251	42	26040	7789
19	973978	992202	981775	18224	41	26021	7797
20	973997	992194	981803	18196	40	26002	7805
21	974016	992185	981830	18169	39	25983	7814
22	974035	992177	981858	18141	38	25964	7822
23	974055	992169	981885	18114	37	25944	7830
24	974074	992160	981913	18086	36	25925	7839
25	974093	992152	981940	18059	35	25906	7847
26	974112	992144	981968	18031	34	25887	7855
27	974131	992135	981995	18004	33	25868	7864
28	974150	992127	982023	17976	32	25849	7872
29	974169	992119	982050	17949	31	25830	7880
30	974188	992110	982078	17921	30	25811	7889

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33	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith. of Sine	Compl. arith. of Si.com.
30	974188	992110	982078	17921	30	25811	7889
31	974208	992102	982105	17894	29	25791	7897
32	974227	992093	982133	17866	28	25772	7906
33	974246	992085	982160	17839	27	25753	7914
34	974265	992077	982188	17811	26	25734	7922
35	974284	992068	982215	17784	25	25715	7931
36	974303	992060	982242	17757	24	25696	7939
37	974322	992052	982270	17729	23	25677	7948
38	974341	992043	982297	17702	22	25658	7956
39	974360	992035	982325	17674	21	25639	7964
40	974379	992026	982352	17647	20	25620	7973
41	974398	992018	982379	17610	19	25601	7981
42	974417	992009	982407	17592	18	25582	7990
43	974436	992001	982434	17565	17	25563	7998
44	974454	991993	982461	17538	16	25545	8006
45	974473	991984	982489	17510	15	25526	8015
46	974492	991976	982516	17483	14	25507	8023
47	974511	991967	982543	17456	13	25488	8032
48	974530	991959	982571	17428	12	25469	8040
49	974549	991950	982598	17401	11	25450	8049
50	974568	991942	982625	17374	10	25431	8057
51	974587	991933	982653	17346	9	25412	8066
52	974605	991925	982680	17319	8	25394	8074
53	974624	991916	982707	17292	7	25375	8083
54	974643	991908	982735	17264	6	25356	8091
55	974662	991899	982762	17237	5	25337	8100
56	974681	991891	982789	17210	4	25318	8108
57	974699	991882	982816	17183	3	25300	8117
58	974718	991874	982844	17155	2	25281	8125
59	974737	991865	982871	17128	1	25262	8134
60	974756	991857	982898	17101	0	25243	8142
	Sine Compl.	Sine.	Tang. Compl.	Tang	56		

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34 Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
0	974756	991857	982898	17101	60	25243	8142
1	974774	991848	982925	17074	59	25225	8151
2	974793	991840	982953	17046	58	25206	8159
3	974812	991831	982980	17019	57	25187	8168
4	974830	991823	983007	16992	56	25169	8176
5	974849	991814	983034	16965	55	25150	8185
6	974868	991806	983062	16937	54	25131	8193
7	974886	991797	983089	16910	53	25113	8202
8	974905	991789	983116	16883	52	25094	8210
9	974924	991780	983143	16856	51	25075	8219
10	974942	991771	983170	16829	50	25057	8228
11	974961	991763	983198	16801	49	25038	8236
12	974980	991754	983225	16774	48	25019	8245
13	974998	991746	983252	16747	47	25001	8253
14	975017	991737	983279	16720	46	24982	8262
15	975035	991729	983306	16693	45	24964	8271
16	975054	991720	983333	16666	44	24945	8279
17	975072	991711	983361	16638	43	24927	8288
18	975091	991703	983388	16611	42	24908	8296
19	975109	991694	983415	16584	41	24890	8305
20	975128	991685	983442	16551	40	24871	8314
21	975146	991677	983469	16530	39	24853	8322
22	975165	991668	983496	16503	38	24834	8331
23	975183	991660	983523	16476	37	24816	8339
24	975202	991651	983550	16449	36	24797	8348
25	975220	991642	983578	16421	35	24779	8357
26	975239	991634	983605	16394	34	24760	8365
27	975257	991625	983632	16367	33	24742	8374
28	975276	991616	983659	16340	32	24723	8383
29	975294	991608	983686	16313	31	24705	8391
30	975312	991599	983713	16286	30	24687	8400

| Sine Compl. | Sine. | Tang. Compl. | Tang | 55 |

34	Sine.	Sine Compl.	Tang.	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com
30	975312	991599	983713	16286	30	24687	8400
31	975331	991590	983740	16259	29	24668	8409
32	975349	991582	983767	16232	28	24650	8418
33	975367	991573	983794	16205	27	24632	8426
34	975386	991564	983821	16178	26	24613	8435
35	975404	991555	983848	16151	25	24595	8444
36	975422	991547	983875	16124	24	24577	8452
37	975441	991538	983902	16097	23	24558	8461
38	975459	991529	983929	16070	22	24540	8460
39	975477	991521	983956	16043	21	24522	8478
40	975496	991512	983983	16016	20	24503	8487
41	975514	991503	984010	15989	19	24485	8496
42	975532	991494	984037	15962	18	24467	8505
43	975550	991486	984064	15935	17	24449	8513
44	975565	991477	984091	15908	16	24430	8522
45	975587	991468	984118	15881	15	24412	8531
46	975605	991459	984145	15854	14	24394	8540
47	975623	991450	984172	15827	13	24376	8549
48	975641	991442	984199	15800	12	24358	8557
49	975659	991433	984226	15773	11	24340	8566
50	975678	991424	984253	15746	10	24321	8575
51	975696	991415	984280	15719	9	24303	8584
52	975714	991407	984307	15692	8	24285	8592
53	975732	991398	984334	15665	7	24267	8601
54	975750	991389	984361	15638	6	24249	8610
55	975768	991380	984388	15611	5	24231	8619
56	975786	991371	984415	15584	4	24213	8628
57	975804	991362	984441	15558	3	24195	8637
58	975823	991354	984468	15531	2	24176	8645
59	975841	991345	984495	15504	1	24158	8654
60	975859	991336	984522	15477	0	24140	8663
	Sine Compl.	Sine.	Tang. Compl.	Tang	55		

35	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.	
0	975859	991336	984522	15477	60	24142	8663	
1	975877	991327	984549	15450	59	24122	8672	
2	975895	991318	984576	15423	58	24104	8681	
3	975913	991309	984603	15398	57	24086	8690	
4	975931	991301	984630	15369	56	24068	8698	
5	975949	991292	984657	15342	55	24050	8707	
6	975967	991283	984683	15316	54	24032	8716	
7	975985	991274	984710	15289	53	24014	8725	
8	976003	991265	984737	15262	52	23996	8734	
9	976021	991256	984764	15235	51	23978	8743	
10	976038	991247	984791	15208	50	23966	8752	
11	976056	991238	984818	15181	49	23943	8761	
12	976074	991229	984844	15155	48	23925	8770	
13	976092	991220	984871	15128	47	23907	8779	
14	976110	991212	984898	15101	46	23889	8787	
15	976128	991203	984925	15074	45	23871	8796	
16	976146	991194	984952	15047	44	23813	8805	
17	976164	991185	984978	15021	43	23835	8814	
18	976182	991176	985005	14994	42	23817	8823	
19	976199	991167	985032	14967	41	23800	8832	
20	976217	991158	985059	14940	40	23782	8841	
21	976235	991149	985086	14913	39	23764	8850	
22	976253	991140	985112	14887	38	23746	8859	
23	976271	991131	985139	14860	37	23728	8868	
24	976288	991122	985166	14833	36	23711	8877	
25	976306	991113	985193	14806	35	23693	8886	
26	976324	991104	985219	14780	34	23675	8895	
27	976342	991095	985246	14753	33	23657	8904	
28	976359	991086	985273	14726	32	23640	8913	
29	976377	991077	985300	14699	31	23622	8922	
30	976395	991068	985326	14673	30	23604	8931	
	Sine Compl.	Sine.	Tang. Compl.	Tang	54			

35	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	976395	991068	985326	14673	30	23504	8931
31	976413	991059	985353	14646	29	23586	8940
32	976430	991050	985380	14619	28	23569	8949
33	976448	991041	985406	14593	27	23551	8958
34	976466	991032	985433	14566	26	23533	8967
35	976482	991023	985460	14539	25	23516	8976
36	976501	991014	985487	14512	24	23498	8985
37	976519	991005	985513	14486	23	23480	8994
38	976536	990996	985540	14459	22	23463	9003
39	976554	990987	985567	14432	21	23445	9012
40	976570	990978	985593	14406	20	23428	9021
41	976589	990969	985620	14379	19	23410	9030
42	976607	990960	985647	14352	18	23392	9039
43	976624	990950	985673	14326	17	23375	9049
44	976642	990941	985700	14299	16	23357	9058
45	976659	990932	985727	14272	15	23340	9067
46	976677	990923	985753	14246	14	23322	9076
47	976694	990914	985780	14219	13	23305	9085
48	976712	990905	985806	14193	12	23287	9094
49	976729	990896	985833	14166	11	23270	9103
50	976747	990883	985860	14139	10	23252	9112
51	976764	990878	985886	14113	9	23235	9121
52	976782	990869	985913	14086	8	23217	9130
53	976799	990859	985940	14059	7	23200	9140
54	976817	990850	985966	14033	6	23182	9149
55	976834	990841	985993	14006	5	23165	9158
56	976852	990832	986019	13980	4	23147	9167
57	976869	990823	986046	13953	3	23130	9176
58	976887	990814	986072	13927	2	23112	9185
59	976904	990804	986099	13900	1	23095	9195
60	976921	990795	986126	13873	0	23078	9204
	Sine Compl.	Sine.	Tang. Compl.	Tang	54		

35	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.	
0	976921	990795	986126	13873	60	23078	9204	
1	976939	990786	986152	13847	59	23060	9213	
2	976956	990777	986179	13820	58	23043	9222	
3	976973	990768	986205	13794	57	23026	9231	
4	976991	990759	986232	13767	56	23008	9240	
5	977008	990749	986258	13741	55	22991	9250	
6	977026	990740	986285	13714	54	22973	9259	
7	977043	990731	986311	13688	53	22956	9268	
8	977060	990722	986338	13661	52	22939	9277	
9	977077	990712	986365	13635	51	22922	9287	
10	977095	990703	986391	13608	50	22904	9296	
11	977112	990694	986418	13581	49	22887	9305	
12	977129	990685	986444	13555	48	22870	9314	
13	977147	990675	986471	13528	47	22852	9324	
14	977164	990666	986497	13502	46	22835	9333	
15	977181	990657	986524	13475	45	22818	9342	
16	977198	990646	986550	13449	44	22801	9351	
17	977215	990638	986577	13422	43	22784	9361	
18	977233	990629	986603	13396	42	22766	9370	
19	977250	990620	986629	13370	41	22749	9379	
20	977267	990611	986656	13343	40	22732	9388	
21	977284	990601	986682	13317	39	22715	9398	
22	977301	990592	986709	13290	38	22698	9407	
23	977319	990583	986735	13264	37	22681	9416	
24	977336	990573	986762	13237	36	22663	9426	
25	977353	990564	986788	13211	35	22646	9435	
26	977370	990555	986815	13184	34	22629	9444	
27	977387	990545	986841	13158	33	22612	9454	
28	977404	990536	986868	13131	32	22595	9463	
29	977421	990527	986894	13105	31	22578	9472	
30	977438	990517	986920	13079	30	22561	9482	
	Sine Compl.	Sine.	Tang. Compl.	Tang	53			

36	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine	Compl. arith. of Si.com.
30	977438	990517	986920	13079	30	22561	9484
31	977455	990508	986947	13052	29	22544	9491
32	977472	990499	986973	13026	28	22527	9500
33	977489	990489	987000	12999	27	22510	9510
34	977506	990480	987026	12973	26	22493	9519
35	977523	990471	987056	12947	25	22476	9528
36	977541	990461	987079	12920	24	22458	9538
37	977558	990452	987105	12894	23	22441	9547
38	977575	990442	987132	12867	22	22424	9557
39	977591	990433	987158	12841	21	22408	9566
40	977608	990424	987184	12815	20	22391	9575
41	977625	990414	987211	12788	19	22374	9585
42	977642	990405	987237	12762	18	22357	9594
43	977659	990395	937263	12736	17	22340	9604
44	977676	990386	987290	12709	16	22323	9613
45	977693	990377	987316	12683	15	22306	9622
46	977710	990367	987343	12656	14	22289	9632
47	977727	990358	987369	12630	13	22272	9641
48	977744	990348	987395	12604	12	22255	9651
49	977761	990339	987422	12577	11	22238	9660
50	977778	990329	987448	12551	10	22221	9670
51	977795	990320	987474	12525	9	22204	9679
52	977811	990310	987501	12498	8	22188	9689
53	977828	990301	987527	12472	7	22171	9698
54	977845	990291	987553	12446	6	22154	9708
55	977862	990282	987579	12420	5	22137	9717
56	977879	990272	987606	12393	4	22120	9727
57	977895	990263	987632	12367	3	22104	9736
58	977912	990253	987658	12341	2	22087	9746
59	977929	990244	987685	12314	1	22070	9755
60	977946	990234	987711	12288	0	22053	9765
	Sine Compl.	Sine	Tang. Compl.	Tang	53		

37	Sine.	Sine Compl	Tang	Tang. Compl.		Compl. Arith. of Sine.	Compl. arith.of Si.com.	37
0	977946	990234	987711	12288	60	22053	9765	
1	977963	990225	987737	12262	59	22036	9774	
2	977976	990215	987764	12236	58	22020	9784	
3	977996	990206	987790	12209	57	22003	9793	
4	978013	990196	987816	12183	56	21986	9803	
5	978030	990187	987842	12157	55	21970	9812	
6	978046	990177	987869	12130	54	21953	9822	
7	978063	990168	987895	12104	53	21936	9831	
8	978080	990158	987921	12078	52	21919	9841	
9	978096	990148	987947	12052	51	21903	9851	
10	978113	990139	987974	12025	50	21886	9860	
11	978130	990129	988000	11999	49	21869	9870	
12	978146	990120	988026	11973	48	21853	9879	
13	978163	990110	988052	11947	47	21836	9889	
14	978180	990101	988079	11921	46	21819	9898	
15	978196	990091	988105	11894	45	21803	9908	
16	978213	990081	988131	11868	44	21786	9918	
17	978229	990072	988157	11842	43	21770	9927	
18	978246	990062	988183	11816	42	22753	9937	
19	978263	990052	988210	11789	41	21736	9947	
20	978279	990043	988236	11763	40	21720	9956	
21	978296	990033	988262	11737	39	21703	9966	
22	978312	990024	988288	11711	38	21687	9975	
23	978329	990014	988314	11685	37	21670	9985	
24	978345	990004	988341	11658	36	21654	9995	
25	978362	989995	988367	11632	35	21637	10004	
26	978378	989985	988393	11606	34	21621	10014	
27	978395	989975	988419	11580	33	21604	10024	
28	978411	989966	988445	11554	32	21588	10033	
29	978428	989956	988471	11528	31	21571	10043	
30	978444	989946	988498	11501	30	21555	10053	
	Sine Compl.	Sine.	Tang. Compl.	Tang	52			

37 Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Comp l. arith. of Si.com.
30 978444	989946	988498	11501	30	21555	10053
31 978461	989936	988524	11475	29	21538	10063
32 978477	989927	988550	11449	28	21522	10072
33 978494	989917	988576	11423	27	21505	10082
34 978510	989907	988602	11397	26	21489	10092
35 978526	989898	988628	11371	25	21473	10101
36 978543	989888	988654	11345	24	21456	10111
37 978559	989878	988681	11318	23	21440	10121
38 978576	989868	988707	11292	22	21423	10131
39 978592	989859	988733	11266	21	21407	10140
40 978608	989849	988759	11240	20	21391	10150
41 978625	989839	988785	11214	19	21374	10160
42 978641	989829	988811	11188	18	21358	10170
43 978657	989820	988837	11162	17	21342	10179
44 978674	989810	988863	11136	16	21325	10189
45 978690	989800	988889	11110	15	21309	10199
46 978706	989790	988916	11083	14	21293	10209
47 978723	989781	988942	11057	13	21276	10218
48 978739	989771	988968	11031	12	21260	10228
49 978755	989761	988994	11005	11	21244	10238
50 978772	989751	989020	10979	10	21227	10248
51 978788	989741	989046	10953	9	21211	10258
52 978804	989731	989072	10927	8	21195	10268
53 978820	989722	989098	10901	7	21179	10277
54 978837	989712	989124	10875	6	21162	10287
55 978853	989702	989150	10849	5	21146	10297
56 978869	989692	989176	10823	4	21130	10307
57 978885	989682	989202	10797	3	21114	10317
58 978901	989672	989228	10771	2	21098	10327
59 978918	989663	989254	10745	1	21081	10336
60 978934	989653	989280	10719	0	21065	10346
Sine Compl.	Sine.	Tang. Compl.	Tang 52			

38	Sine	Sine Compl	Tang	Tang. Compl		Compl. Arith. of Sine	Compl. arith. of Si. com.
0	978934	989653	989280	10719	60	21365	10346
1	978950	989643	989307	10692	59	21049	10356
2	978966	989633	989333	10666	58	21033	10366
3	978982	989623	989359	10640	57	21017	10376
4	978998	989613	989385	10614	56	21001	10386
5	979014	989603	989411	10588	55	20985	10396
6	979031	989593	989437	10562	54	20968	10406
7	979047	989583	989463	10536	53	20952	10416
8	979063	989574	989489	10510	52	20936	10425
9	979079	989564	989515	10484	51	20920	10435
10	979095	989554	989541	10458	50	20904	10445
11	979111	989544	989567	10432	49	20888	10455
12	979127	989534	989593	10406	48	20872	10465
13	979143	989524	989619	10380	47	20855	10475
14	979159	989514	989645	10354	46	20840	10485
15	979175	989504	989671	10328	45	20824	10495
16	979191	989494	989697	10302	44	20808	10505
17	979207	989484	989723	10276	43	20792	10515
18	979223	989474	989749	10250	42	20776	10525
19	979239	989464	989775	10224	41	20760	10535
20	979255	989454	989801	10198	40	20744	10545
21	979271	989444	989827	10173	39	20728	10555
22	979287	989434	989852	10147	38	20712	10565
23	979303	989424	989878	10121	37	20696	10575
24	979319	989414	989904	10095	36	20680	10585
25	979335	989404	989930	10069	35	20664	10595
26	979351	989394	989956	10043	34	20648	10605
27	979367	989384	989982	10017	33	20632	10615
28	979383	989374	990008	9991	32	20616	10625
29	979399	989364	990034	9965	31	20600	10635
30	979417	989354	990060	9939	30	20585	10645

| Sine Compl. | Sine. | Tang. Compl. | Tang | 51 |

38	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl arith.of Si.com.
30	979414	989354	990069	9939	30	20585	10645
31	979430	989344	990086	9913	29	20569	10655
32	979446	989334	990112	9887	28	20553	10665
33	979462	989324	990138	9861	27	20537	10675
34	979478	989314	990164	9835	26	20521	10685
35	979494	989304	990190	9809	25	20505	10695
36	979510	989294	990216	9783	24	20489	10705
37	979525	989283	990241	9758	23	20474	10716
38	979541	989273	990267	9732	22	20458	10726
39	979557	989263	990293	9706	21	20442	10736
40	979573	989253	990319	9680	20	20426	10746
41	979589	989243	990345	9654	19	20410	10756
42	979604	989233	990371	9628	18	20395	10766
43	979620	989223	990397	9602	17	20379	10776
44	979636	989213	990423	9576	16	20363	10786
45	979652	989203	990449	9550	15	20347	10796
46	979667	989192	990474	9525	14	20332	10807
47	979683	989182	990500	9499	13	20316	10817
48	979699	989172	990526	9473	12	20300	10827
49	979715	989162	990552	9447	11	20284	10837
50	979730	989152	990578	9421	10	20269	10847
51	979746	989142	990604	9395	9	20253	10857
52	979762	989131	990630	9369	8	20237	10868
53	979777	989121	990656	9343	7	20222	10878
54	979793	989111	990681	9318	6	20206	10888
55	979809	989101	990707	9292	5	20190	10898
56	979824	989091	990733	9266	4	20175	10908
57	979840	989080	990759	9240	3	20159	10919
58	979855	989070	990785	9214	2	20144	10929
59	979871	989060	990811	9188	1	20128	10939
60	979887	989050	990836	9163	0	20112	10949
	Sine Compl.	Sine.	Tang. Compl.	Tang	51		

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39	Sine	Sine Compl	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of S1.com.
0	979887	989050	990836	9163	60	20112	10949
1	979902	989040	990862	9137	59	20097	10959
2	979918	989029	990888	9111	58	20081	10971
3	979933	989019	990914	9085	57	20066	10980
4	979949	989009	990940	9059	56	20050	10990
5	979965	988999	990966	9033	55	20034	11000
6	979980	988988	990991	9008	54	20019	11011
7	979996	988978	991017	8982	53	20003	11021
8	980011	988968	991043	8956	52	19988	11031
9	980027	988957	991069	8930	51	19972	11042
10	980042	988947	991095	8904	50	19957	11052
11	980058	988937	991120	8879	49	19941	11062
12	980073	988927	991146	8853	48	19926	11072
13	980089	988916	991172	8827	47	19910	11083
14	980104	988906	991198	8801	46	19895	11093
15	980120	988896	991224	8775	45	19879	11103
16	980135	988885	991249	8750	44	19864	11114
17	980151	988875	991275	8724	43	19848	11124
18	980166	988865	991301	8698	42	19833	11134
19	980181	988854	991327	8672	41	19818	11145
20	980197	988844	991352	8647	40	19802	11155
21	980212	988834	991378	8621	39	19787	11165
22	980228	988823	991404	8595	38	19771	11176
23	980243	988813	991430	8569	37	19756	11186
24	980258	988802	991455	8544	36	19741	11197
25	980274	988792	991481	8518	35	19725	11207
26	980289	988781	991507	8492	34	19710	11217
27	980305	988771	991533	8466	33	19694	11228
28	980320	988761	991558	8441	32	19679	11238
29	980335	988751	991584	8415	31	19664	11248
30	980351	988740	991610	8389	30	19648	11259

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 50 | | |

39	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
30	980351	988740	991610	8389	30	19648	11259
31	980366	988720	991636	8363	29	19633	11269
32	980381	988719	991661	8338	28	19618	11280
33	980396	988709	991687	8312	27	19603	11290
34	980412	988698	991713	8286	26	19587	11301
35	980427	988688	991739	8260	25	19572	11311
36	980442	988678	991764	8235	24	19557	11321
37	980458	988667	991790	8209	23	19541	11332
38	980473	988657	991816	8183	22	19526	11342
39	980488	988646	991841	8158	21	19511	11353
40	980503	988636	991867	8132	20	19496	11363
41	980519	988625	991893	8106	19	19480	11374
42	980534	988615	991919	8080	18	19465	11384
43	980549	988604	991944	8055	17	19450	11395
44	980564	988594	991970	8029	16	19435	11405
45	980579	988583	991996	8003	15	19420	11416
46	980595	988573	992021	7978	14	19404	11426
47	980610	988562	992047	7952	13	19389	11437
48	980625	988552	992073	7926	12	19374	11447
49	980640	988541	992098	7901	11	19359	11458
50	980655	988531	992124	7875	10	19344	11468
51	980670	988520	992150	7849	9	19329	11479
52	980686	988510	992176	7823	8	19313	11490
53	980701	988499	992201	7798	7	19298	11500
54	980716	988488	992227	7772	6	19283	11511
55	980731	988478	992253	7746	5	19268	11521
56	980746	988467	992278	7721	4	19253	11532
57	980761	988457	992304	7695	3	19238	11542
58	980776	988446	992330	7669	2	19223	11553
59	980791	988435	992355	7644	1	19208	11564
60	980806	988425	992381	7618	0	19193	11574
	Sine Compl.	Sine.	Tang. Compl.	Tang	50		

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40	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	980806	988425	992381	7618	60	19193	11574
1	980821	988414	992407	7592	59	19178	11585
2	980836	988404	992432	7567	58	19163	11595
3	980851	988393	992458	7541	57	19148	11606
4	980866	988382	992483	7516	56	19133	11617
5	980881	988372	992509	7490	55	19118	11627
6	980896	988361	992535	7464	54	19103	11638
7	980911	988351	992560	7439	53	19088	11648
8	980926	988340	992586	7413	52	19073	11659
9	980941	988329	992611	7387	51	19058	11670
10	980956	988319	992637	7362	50	19043	11680
11	980971	988308	992663	7336	49	19028	11691
12	980986	988297	992689	7310	48	19013	11702
13	981001	988287	992714	7285	47	18998	11712
14	981016	988276	992740	7259	46	18983	11723
15	981031	988265	992765	7234	45	18968	11734
16	981046	988254	992791	7208	44	18953	11745
17	981061	988244	992817	7182	43	18938	11755
18	981076	988233	992842	7157	42	18923	11766
19	981091	988222	992868	7131	41	18908	11777
20	981106	988212	992893	7106	40	18893	11787
21	981120	988201	992919	7080	39	18879	11798
22	981135	988190	992945	7054	38	18864	11809
23	981150	988179	992970	7029	37	18849	11820
24	981165	988169	992996	7003	36	18834	11830
25	981180	988158	993021	6978	35	18819	11841
26	981195	988147	993047	6952	34	18804	11852
27	981210	988136	993073	6926	33	18789	11863
28	981224	988126	993098	6901	32	18775	11873
29	981239	988115	993124	6875	31	18760	11884
30	981254	988104	993149	6850	30	18745	11895
	Sine Compl.	Sine.	Tang. Compl.	Tang	49		

40	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.
30	981254	988104	993149	6850	30	18745	11895
31	981269	988093	993175	6824	29	18730	11906
32	981284	988082	993201	6798	28	18715	11917
33	981298	988072	993226	6773	27	18701	11927
34	981313	988061	993252	6747	26	18686	11938
35	981328	988050	993277	6722	25	18671	11949
36	981343	988039	993303	6696	24	18656	11960
37	981357	988028	993328	6671	23	18642	11971
38	981372	988018	993354	6645	22	18627	11981
39	981387	988007	993380	6619	21	18612	11992
40	981401	987996	993405	6594	20	18598	12003
41	981416	987985	993431	6568	19	18583	12014
42	981431	987974	993456	6543	18	18568	12025
43	981446	987963	993482	6517	17	18554	12036
44	981460	987952	993507	6492	16	18539	12047
45	981475	987941	993533	6466	15	18524	12058
46	981489	987931	993558	6441	14	18510	12068
47	981504	987920	993584	6415	13	18495	12079
48	981519	987909	993609	6390	12	18480	12090
49	981533	987898	993635	6364	11	18466	12101
50	981548	987887	993661	6338	10	18451	12112
51	981563	987876	993686	6313	9	18436	12123
52	981577	987865	993712	6287	8	18422	12134
53	981592	987854	993737	6262	7	18407	12145
54	981606	987843	993763	6236	6	18393	12156
55	981621	987832	993788	6211	5	18378	12167
56	981636	987821	993814	6185	4	18363	12178
57	981650	987810	993839	6160	3	18349	12189
58	981665	987799	993865	6134	2	18334	12200
59	981679	987788	993890	6109	1	18320	12211
60	981694	987777	993916	6083	0	18305	12222
	Sine Compl.	Sine.	Tang. Compl.	Tang	49		

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41	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Si.com.	Compl. arith. of Si.com.
0	981694	987777	993916	6083	60	18305	12222
1	981708	987767	993941	6058	59	18291	12233
2	981723	987756	993967	6032	58	18276	12243
3	981737	987745	993992	6007	57	18262	12254
4	981752	987734	994018	5981	56	18247	12265
5	981766	987723	994043	5956	55	18233	12277
6	981781	987711	994069	5930	54	18218	12288
7	981795	987700	994094	5905	53	18204	12299
8	981810	987689	994120	5879	52	18189	12310
9	981824	987678	994145	5854	51	18175	12321
10	981839	987657	994171	5828	50	18160	12332
11	981853	987656	994196	5803	49	18146	12343
12	981868	987645	994222	5777	48	18131	12354
13	981882	987634	994247	5752	47	18117	12365
14	981896	987623	994273	5726	46	18103	12376
15	981911	987612	994298	5701	45	18088	12387
16	981925	987601	994324	5675	44	18074	12398
17	981940	987590	994349	5650	43	18059	12409
18	981954	987579	994375	5624	42	18045	12420
19	981968	987568	994400	5599	41	18031	12431
20	981983	987557	994426	5573	40	18016	12442
21	981997	987545	994451	5548	39	18002	12454
22	982011	987534	994477	5522	38	17988	12465
23	982026	987523	994502	5497	37	17973	12476
24	982040	987512	994528	5471	36	17959	12487
25	982054	987501	994553	5446	35	17945	12498
26	982069	987490	994579	5421	34	17930	12509
27	982083	987479	994604	5395	33	17916	12520
28	982097	987468	994629	5370	32	17902	12532
29	982112	987456	994655	5344	31	17887	12543
30	982126	987445	994680	5319	30	17873	12554

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 48 | | |

41	Sine	Sine Compl	Tang	Tang. Compl.		Compl. Arith. of Sine	Compl. arith. of Si. com.
30	982126	987445	994680	5319	30	17873	12554
31	982140	987434	994706	5293	29	17359	12565
32	982155	987423	994731	5268	28	17845	12576
33	982169	987412	994757	5242	27	17830	12587
34	982183	987400	994782	5217	26	17816	12599
35	982197	987389	994808	5191	25	17802	12510
36	982211	987378	994833	5166	24	17788	12621
37	982226	987367	994858	5141	23	17773	12632
38	982240	987355	994884	5115	22	17759	12644
39	982254	987344	994909	5290	21	17745	12655
40	982268	9 7333	994935	5064	20	17731	12666
41	982283	987322	994960	5039	19	17716	12677
42	982297	987311	994986	5013	18	17702	12688
43	982311	987299	995011	4988	17	17688	12700
44	982325	987288	995037	4962	16	17674	12711
45	982339	987277	995062	4937	15	17660	12722
46	982353	987265	995087	4912	14	17646	12734
47	932368	987254	995113	4886	13	17632	12745
48	982382	987243	995138	4861	12	17617	12756
49	982396	987232	995164	4835	11	17603	12767
50	982410	987220	995189	4810	10	17589	12779
51	982424	987209	995215	4784	9	17575	12790
52	982438	987198	995240	4759	8	17561	12801
53	982452	987186	995265	4734	7	17547	12813
54	982466	987175	995291	4708	6	17533	12824
55	982480	987164	995316	4683	5	17519	12835
56	982494	987152	995342	4657	4	17505	12847
57	982508	987141	995367	4632	3	17491	12858
58	982523	987130	995392	4607	2	17476	12869
59	982537	987118	995418	4581	1	17462	12881
60	982551	987107	995443	4556	0	17448	12892
	Sine Compl.	Sine.	Tang. Compl.	Tang	48		

F 4

42	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Si.com	Compl. arith. of Si.com
0	982551	987107	995443	4556	60	17448	12892
1	982565	987095	995469	4530	59	17434	12904
2	982579	987084	995494	4505	58	17420	12915
3	982593	987073	995519	4480	57	17406	12926
4	982607	987061	995545	4454	56	17392	12938
5	982621	987050	995570	4429	55	17378	12949
6	982635	987038	995596	4403	54	17364	12961
7	982649	987027	995621	4378	53	17350	12972
8	982663	987016	995646	4353	52	17336	12983
9	982677	987004	995672	4323	51	17322	12995
10	982690	986993	995697	4302	50	17309	13006
11	982704	986981	995723	4276	49	17295	13018
12	982718	986970	995748	4251	48	17281	13029
13	982732	986958	995773	4226	47	17267	13041
14	982746	986947	995799	4200	46	17253	13052
15	982760	986935	995824	4175	45	17239	13064
16	982774	986924	995850	4149	44	17225	13075
17	982788	986913	995875	4124	43	17211	13086
18	982802	986901	995900	4099	42	17197	13098
19	982816	986890	995926	4073	41	17183	13109
20	982830	986878	995951	4048	40	17169	13121
21	982843	986867	995976	4023	39	17156	13133
22	982857	986855	996002	3997	38	17142	13144
23	982871	986843	996027	3972	37	17128	13156
24	982885	986832	996053	3946	36	17114	13167
25	982899	986820	996078	3921	35	17102	13179
26	982913	986809	996103	3896	34	17086	13190
27	982926	986797	996129	3870	33	17073	13202
28	982940	986786	996154	3845	32	17059	13213
29	982954	986774	996179	3820	31	17045	13225
30	982968	986763	996205	3794	30	17031	13236
	Sine Compl.	Sine.	Tang. Compl.	Tang	47		

42	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine	Compl. arith. of Si.com.
30	982968	986763	996205	3794	30	17031	13236
31	982982	986751	996230	3769	29	17017	13248
32	982995	986739	996255	3744	28	17004	13260
33	983009	986728	996281	3718	27	16990	13271
34	983023	986716	996306	3693	26	16976	13283
35	983037	986705	996332	3667	25	16962	13294
36	983050	986693	996357	3642	24	16949	13306
37	983064	986681	996382	3617	23	16935	13318
38	983078	986670	996408	3591	22	16921	13329
39	983092	986658	996433	3566	21	16907	13541
40	983105	986646	996458	3541	20	16894	13353
41	983119	986635	996484	3515	19	16880	13364
42	983133	986623	996509	3490	18	16866	13376
43	983146	986612	996534	3465	17	16853	13387
44	983160	986600	996560	3439	16	16839	13399
45	983174	986588	996585	3414	15	16825	13411
46	983187	986577	996610	3389	14	16812	13423
47	983201	986565	996636	3363	13	16798	13432
48	983215	986553	996661	3338	12	16784	13446
49	983228	986541	996686	3313	11	16771	13458
50	983242	986530	996712	3287	10	16757	13469
51	983256	986518	996737	3262	9	16743	13481
52	983269	986506	996762	3237	8	16730	13493
53	983283	986495	996788	3211	7	16716	13504
54	983296	986483	996813	3186	6	16703	13516
55	983310	986471	996838	3161	5	16689	13528
56	983324	986459	996864	3135	4	16675	13540
57	983337	986448	996889	3110	3	16662	13551
58	983351	986436	996914	3085	2	16648	13563
59	983364	986424	996940	3059	1	16635	13575
60	983378	986412	996965	3034	0	16621	13587
	Sine Compl.	Sine.	Tang. Compl.	Tang	47		

43	Sine	Sine Compl.	Tang	Tang. Compl.		Compl. arith. of Sine.	Compl. arith. of Si.com.
0	983378	986412	996965	3035	60	16621	13599
1	983391	986400	996990	3009	59	16628	13599
2	983405	986389	997016	2983	58	16594	13610
3	983418	986377	997041	2958	57	16581	13622
4	983432	986365	997066	2933	56	16567	13634
5	983445	986353	997092	2907	55	16554	13646
6	983459	986341	997117	2882	54	16540	13658
7	983472	986330	997142	2857	53	16527	13669
8	983486	986318	997168	2831	52	16513	13681
9	983499	986306	997193	2806	51	16500	13693
10	983513	986296	997218	2781	50	16486	13705
11	983526	986282	997244	2755	49	16473	13717
12	983540	946270	997269	2730	48	16459	13729
13	983553	986259	997294	2705	47	16446	13740
14	983567	986247	997320	2679	46	16432	13752
15	983580	986235	997345	2654	45	16419	13764
16	983594	986223	997370	2629	44	16405	13776
17	983607	936211	997396	2603	43	16392	13788
18	983620	986199	997421	2578	42	16379	13800
19	983634	986187	997446	2553	41	16365	13812
20	983647	986175	997471	2528	40	16352	13824
21	983661	986163	997497	2502	39	16338	13836
22	983674	986151	997522	2477	38	16325	13848
23	983687	986139	997547	2452	37	16312	13860
24	983701	986128	997573	2426	36	16298	13871
25	983714	986116	997598	2401	35	16285	13883
26	983727	986104	997623	2376	34	16272	13895
27	983741	986092	997645	2350	33	16258	13907
28	983754	986080	997674	2325	32	16245	13919
29	983767	986068	997699	2300	31	16232	13931
30	983781	986056	997725	2275	30	16218	13943

| | Sine Compl. | Sine. | Tang. Compl. | Tang | 46 | | |

43	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sne	Compl. arith.of Si.com.
30	983781	986056	997725	2275	30	16218	13943
31	983794	986044	997750	2249	29	16205	13953
32	983807	986032	997775	2224	28	16192	13967
33	983821	986020	997800	2199	27	16178	13979
34	983834	986008	997826	2173	26	16165	13991
35	983847	985996	997851	2148	25	16152	14003
36	983860	985984	997876	2123	24	16139	14015
37	983874	985972	997902	2097	23	16125	14027
38	983887	985960	997927	2072	22	16112	14039
39	983900	985948	997952	2047	21	16099	14051
40	983913	985935	997977	2022	20	16086	14064
41	983927	985923	998003	1996	19	16072	14075
42	983940	985911	998028	1971	18	16059	14088
43	983953	985899	998053	1946	17	16046	14100
44	983966	985887	998079	1920	16	16033	14112
45	983980	985875	998104	1895	15	16019	14124
46	983993	985863	998129	1870	14	16006	14136
47	984006	985851	998155	1844	13	15993	14148
48	984019	985839	998180	1819	12	15980	14160
49	984032	985827	998205	1794	11	15967	14172
50	984045	985815	998230	1769	10	15954	14184
51	984059	985802	998256	1743	9	15940	14197
52	984072	985790	998281	1718	8	15927	14209
53	984085	985778	998306	1693	7	15914	14221
54	984098	985768	998332	1667	6	15901	14233
55	984111	985754	998357	1642	5	15888	14245
56	984124	985742	998382	1617	4	15875	14257
57	984137	985729	998407	1592	3	15862	14270
58	984150	985717	998433	1566	2	15849	14282
59	984164	985705	998458	1541	1	15835	14294
60	984177	985693	998483	1516	0	15822	14306
	Sine Compl.	Sine.	Tang. Compl.	Tang	46		

44	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. arith.of Sine.	Compl. arith.of Si.com.
0	984177	985693	998483	1516	60	15822	14306
1	984190	985681	998509	1491	59	15809	14318
2	984203	985669	998534	1465	58	15796	14331
3	984216	985656	998559	1440	57	15783	14345
4	984229	985644	998584	1415	56	15770	14355
5	984242	985632	998610	1389	55	15757	14367
6	984255	985620	998635	1364	54	15744	14379
7	984268	985607	998660	1339	53	15731	14392
8	984281	985595	998685	1314	52	15718	14404
9	984294	985583	998711	1288	51	15705	14416
10	984307	985571	998736	1263	50	15692	14428
11	984320	985558	998761	1238	49	15679	14441
12	984333	985546	998787	1212	48	15666	14453
13	984346	985534	998812	1187	47	15653	14465
14	984359	985521	998837	1162	46	15640	14478
15	984372	985509	998862	1137	45	15627	14490
16	984385	985497	998888	1111	44	15614	14502
17	984398	985484	998913	1086	43	15601	14515
18	984411	985472	998938	1061	42	15588	14527
19	984424	985460	998963	1036	41	15575	14539
20	984437	985447	998989	1010	40	15562	14552
21	984450	985435	999014	985	39	15549	14564
22	984463	985423	999039	960	38	15536	14576
23	984476	985410	999065	934	37	15523	14589
24	984488	985398	999090	909	36	15511	14601
25	984501	985386	999115	884	35	15498	14613
26	984514	985373	999140	859	34	15485	14626
27	984527	985361	999166	833	33	15472	14638
28	984540	985349	999191	808	32	15459	14650
29	984553	985336	999216	783	31	15446	14663
30	984566	985324	999241	758	30	15433	14675
	Sine Compl.	Sine.	Tang. Compl.	Tang	45		

44	Sine.	Sine Compl.	Tang	Tang. Compl.		Compl. Arith.of Sine.	Compl. arith.of Si.com.
30	984566	985324	999241	758	30	15433	14675
31	984579	985311	999267	732	29	15420	14688
32	984591	985299	999292	707	28	15408	14700
33	984604	985286	999317	682	27	15395	14713
34	984617	985274	999343	656	26	15382	14725
35	984630	985262	999368	631	25	15369	14737
36	984643	985249	999393	606	24	15356	14750
37	984655	985237	999418	581	23	15344	14762
38	984668	985224	999444	555	22	15331	14775
39	984681	985212	999469	530	21	15318	14787
40	984694	985199	999494	505	20	15305	14800
41	984707	985187	999519	480	19	15292	14812
42	984719	985174	999545	454	18	15280	14825
43	984732	985162	999570	429	17	15267	14837
44	984745	985149	999595	404	16	15254	14850
45	984758	985137	999621	379	15	15241	14862
46	984770	985124	999646	353	14	15229	14875
47	984783	985112	999671	328	13	15216	14887
48	984796	985099	999696	303	12	15203	14900
49	984809	985087	999722	277	11	15190	14912
50	984821	985074	999747	252	10	15178	14925
51	984834	985061	999772	217	9	15165	14938
52	984847	985049	999797	202	8	15152	14950
53	984859	985036	999823	176	7	15140	14963
54	984872	985024	999848	151	6	15127	14975
55	984885	985011	999873	126	5	15114	14988
56	984897	984998	999898	101	4	15102	15001
57	984910	984986	999924	75	3	15089	15013
58	984923	984973	999949	50	2	15076	15026
59	984935	984961	999974	25	1	15064	15038
60	984948	984948	100000	00	0	15051	15051
	Sine Compl.	Sine.	Tang. Compl.	Tang	45		

A

CHILIAD,

Or The

LOGARITHMES

Of

ABSOLUTE NUMBERS

from a Unite to

1000.

Num.

Nũ.	Logar.	Nũ.	Logar.	Nũ.	Logar.	Nũ.	Logar.
1	000000	36	155630	71	185125	106	203530
2	030103	37	156820	72	185733	107	202938
3	047712		157978	73	186332	108	203342
4	060206	39	159106	74	186923	109	203742
5	069897	40	160206	75	187506	110	204139
6	077815	41	161278	79	188081	111	204532
7	084509	42	162324	77	188649	112	204921
8	090309	43	163346	78	189209	113	205307
9	095424	44	164345	79	189762	114	205690
10	100000	45	165321	80	190309	115	206069
11	104139	46	166275	81	190848	116	206445
12	107918	47	167209	82	191381	117	206818
13	111394	48	168124	83	191907	118	207188
14	114612	49	169019	84	192427	119	207554
15	117609	50	169897	85	192941	120	207918
16	120412	51	170757	86	193449	121	208278
17	123044	52	171600	87	193951	122	208635
18	125527	53	172427	88	194448	123	208990
19	127875	54	173239	89	194939	124	209342
20	130103	55	174036	90	195424	125	209691
21	132221	56	174818	91	195904	126	210037
22	134242	57	175587	92	196378	127	210380
23	136172	58	176342	93	196848	128	210720
24	138021	59	177085	94	197312	129	211058
25	139794	60	177815	95	197772	130	211394
26	141497	61	178532	96	198227	131	211727
27	143136	62	179239	97	198677	132	212057
28	144715	63	179934	98	199123	133	212385
29	146239	64	180618	99	199563	134	212710
30	147712	65	181291	100	200000	135	213033
31	149136	66	181954	101	200432	136	213353
32	150515	67	182607	102	200860	137	213672
33	151851	68	183250	103	201283	138	213987
34	153147	69	183884	104	201703	139	214301
35	154406	70	184509	105	202118	140	214612

Nū.	Logar.	Nū.	Logar.	Nū.	Logar.	Nū.	Logar.
141	214921	176	224551	211	232428	246	23909;
142	215228	177	224797	212	232633	247	23926;
143	215533	178	225042	213	232837	248	23944;
144	215836	179	225285	214	233041	249	23961;
145	216136	180	225527	215	233243	250	23979;
146	216435	181	225767	216	233445	251	239996
147	216731	182	226007	217	233645	252	240140
148	217026	183	226245	218	233845	253	24031;
149	217318	184	226481	219	234044	254	240483
150	217609	185	226717	220	234242	255	240654
151	217897	186	226951	221	234439	256	240823
152	218184	187	227184	222	234635	257	240993
153	218469	188	227415	223	234830	258	241161
154	218752	189	227646	224	235024	259	243325
155	219033	190	227875	225	235218	260	241497
156	219312	191	228103	226	235410	261	24166;
157	219589	192	228330	227	235602	262	24183;
158	219865	193	228555	228	235793	263	24199;
159	220139	194	228780	229	235983	264	24216;
160	220412	195	229003	230	236172	265	24232;
161	220682	196	229225	231	236361	266	24248;
162	220951	197	229446	232	236548	267	24265;
163	221218	198	229666	233	236735	268	24281;
164	221484	199	229885	234	236921	269	24297;
165	221748	200	230103	235	237106	270	24313;
166	222010	201	230319	236	237291	271	24329;
167	222271	202	230535	237	237474	272	24345;
168	222530	203	230749	238	237657	273	24361;
169	222788	204	230963	239	237839	274	24377;
170	223044	205	231175	240	238021	275	24393;
171	223299	206	231386	241	238201	276	24409;
172	223552	207	231597	242	238381	277	24424;
173	223804	208	231806	243	238560	278	24440;
174	224054	209	232014	244	238738	279	24456;
175	224303	210	232221	245	238916	280	24471;

gar.	Nú.	Logar.	Nú.	Logar.	Nú.	Logar.	Nú.	Logar.
009	281	244870	316	249968	351	254530	386	258658
126	282	245024	317	250105	352	254654	387	258771
944	283	245179	318	250242	353	254777	388	258883
061	284	245331	319	250379	354	254900	389	258994
979	285	245484	320	250515	355	255022	390	259106
996	286	245636	321	250650	356	255145	391	259217
014	287	245788	322	250785	357	255266	392	259328
031	288	245939	323	250920	358	255388	393	259439
048	289	246089	324	251054	359	255509	394	259549
065	290	246239	325	251188	360	255630	395	259659
082	291	246389	326	251321	361	255750	396	259769
099	292	246538	327	251454	362	255870	397	259879
116	293	246686	328	251587	363	255990	398	259988
132	294	246834	329	251719	364	256110	399	260097
149	295	246982	330	251851	365	256229	400	260206
166	296	247129	331	251982	366	256348	401	260314
183	297	247275	332	252113	367	256466	402	260422
199	298	247421	333	252244	368	256584	403	260530
216	299	247565	334	252374	369	256702	404	260638
232	300	247712	335	252504	370	256820	405	260745
248	301	247856	336	252633	371	256937	406	260852
265	302	248000	337	252762	372	257054	407	260959
281	303	248144	338	252891	373	257170	408	261066
297	304	248287	339	253019	374	257287	409	261172
313	305	248429	340	253147	375	257403	410	261278
329	306	248572	341	253275	376	257518	411	261384
345	307	248713	342	253402	377	257634	412	261489
361	308	248855	343	253529	378	257749	413	261595
377	309	248995	344	253655	379	257863	414	261700
393	310	249136	345	253781	380	257978	415	261804
409	311	249276	346	253907	381	258092	416	261909
424	312	249415	347	254032	382	258206	417	262013
440	313	249554	348	254157	383	258319	418	262117
456	314	249692	349	254282	384	258433	419	262221
471	315	249831	350	254406	385	258546	420	262324

Nū.	Logar.	Nū.	Logar.	Nū.	Logar.	Nū.	Logar.
421	262428	456	265896	491	269108	526	272098
422	262531	457	265991	492	269196	527	272181
423	262634	458	266086	493	269284	528	272263
424	262736	459	266181	494	269372	529	272345
425	262838	460	266275	495	269460	530	272427
426	262940	461	266370	496	269548	531	272509
427	263042	462	266464	497	269635	532	272591
428	263144	463	266558	498	269722	533	272672
429	263245	464	266651	499	269810	534	272754
430	263346	465	266745	500	269897	535	272835
431	263447	466	266838	501	269983	536	272916
432	263548	467	266931	502	270070	537	272997
433	263648	468	267024	503	270156	538	273078
434	263748	469	267117	504	270243	539	273158
435	263848	470	267209	505	270329	540	273239
436	263948	471	267302	506	270415	541	273319
437	264048	472	267394	507	270500	542	273399
438	264147	473	267486	508	270586	543	273479
439	264246	474	267577	509	270671	544	273559
440	264345	475	267669	510	270757	545	273639
441	264443	476	267760	511	270842	546	273719
442	264542	477	267851	512	270926	547	273798
443	264640	478	267942	513	271011	548	273878
444	264738	479	268033	514	271096	549	273957
445	264836	480	268124	515	271180	550	274036
446	264933	481	268214	516	271264	551	274115
447	265031	482	268304	517	271349	552	274193
448	265127	483	268394	518	271432	553	274271
449	265224	484	268484	519	271516	554	274350
450	265321	485	268574	520	271600	555	274429
451	265417	486	268663	521	271683	556	274507
452	265513	487	268752	522	271767	557	274585
453	265609	488	268841	523	271850	558	274663
454	265705	489	268930	524	271933	559	274741
455	265801	490	269019	525	272015	560	274818

Nŭ.	Logar.	Nŭ.	Logar.	Nŭ.	Logar.	Nŭ.	Logar.
561	274896	596	277524	631	280002	666	282347
562	274973	597	277597	632	280071	667	282412
563	275050	598	277670	633	280140	668	282477
564	275127	599	277742	634	280208	669	282542
565	275204	600	277815	635	280277	670	282607
566	275281	601	277887	636	280345	671	282672
567	275358	602	277959	637	280413	672	282736
568	275434	603	278031	638	280482	673	282801
569	275511	604	278103	639	280550	674	282865
570	275587	605	278175	640	280618	675	282930
571	275663	606	278247	641	280685	676	282994
572	275739	807	278318	642	280753	677	283058
573	275815	608	278390	643	280821	678	283122
574	275891	609	278461	644	280888	679	283186
575	275966	610	278532	645	280955	680	283250
576	276042	611	278604	646	281023	681	283314
577	276117	612	278675	647	281090	682	283378
578	276192	613	278746	648	281157	683	283442
579	276267	614	278816	649	281224	684	283505
580	276341	615	278887	650	281291	685	283569
581	276417	616	278958	651	281358	686	283632
582	276492	617	279028	652	281424	687	283695
583	276566	618	279098	653	281491	688	283758
584	276641	619	279169	654	281557	689	283821
585	276715	620	279239	655	281624	690	283884
586	276789	621	279309	656	281690	691	283947
587	276863	622	279379	657	281756	692	284010
588	276937	623	279448	658	281822	693	284073
589	277011	624	279518	659	281888	694	284135
590	277085	625	279588	660	281954	695	284198
591	277158	626	279657	661	282020	696	284260
592	277232	627	279726	662	282085	697	284323
593	277305	628	279795	663	282151	698	284385
594	277378	629	279865	664	282216	699	284447
595	277451	630	279934	665	282282	700	284509

Nü.	Logar.	Nü.	Logar.	Nü.	Logar.	Nü.	Logar.
701	284571	736	286687	771	288705	806	290633
702	284633	737	286746	772	288761	807	290687
703	284695	738	286805	773	288817	808	290741
704	284757	739	286864	774	288874	809	290794
705	284818	740	286923	775	288930	810	290848
706	284880	741	286981	776	288986	811	290902
707	284941	742	287040	777	289042	812	290955
708	285003	743	287098	778	289097	813	291009
709	285064	744	287157	779	289153	814	291062
710	285125	745	287215	780	289209	815	291115
711	285186	746	287273	781	289265	816	291169
712	285248	747	287332	782	289320	817	291222
713	285308	748	287390	783	289376	818	291275
714	285369	749	287448	784	289431	819	291328
715	285430	750	287506	785	289486	820	291381
716	285491	751	287563	786	289542	821	291434
717	285551	752	287621	787	289597	822	291487
718	285612	753	287679	788	289652	823	291539
719	285672	754	287737	789	289707	824	291592
720	285733	755	287794	790	289762	825	291645
721	285793	756	287852	791	289817	826	291698
722	285853	757	287909	792	289872	827	291750
723	285913	758	287966	793	289927	828	291803
724	285973	759	288024	794	289982	829	291855
725	286033	760	288081	795	290036	830	291907
726	286093	761	288138	796	290091	831	291960
727	286153	762	288195	797	290145	832	292012
728	286213	763	288252	798	290200	833	292064
729	286272	764	288309	799	290254	834	292116
730	286332	765	288366	800	290309	835	292168
731	286391	766	288422	801	290363	836	292220
732	286451	767	288479	802	290417	837	292271
733	286510	768	288536	803	290471	838	292324
734	286569	769	288592	804	290525	839	292376
735	286628	770	288649	805	290579	840	292427

Nū.	Logar.	Nū.	Logar.	Nū.	Logar.	Nū.	Logar.
841	292479	876	294250	911	295951	946	297589
842	292531	877	294299	912	295999	947	297635
843	292582	878	294349	913	296047	948	297680
844	292634	879	294398	914	296094	949	297726
845	292685	880	394448	915	296142	950	297772
846	292737	881	294497	916	296189	951	297818
847	292788	882	294546	917	296236	952	297863
848	292839	883	294596	918	296284	953	297909
849	292890	884	294645	919	296331	954	297954
850	292941	885	294696	920	296378	955	248000
851	292992	886	294743	921	296425	956	298045
852	293043	887	294792	922	296473	957	298091
853	293094	888	294841	923	296520	958	298136
854	293145	889	294890	924	296567	959	298181
855	293196	890	294939	925	296614	960	298227
856	293247	891	294987	926	296661	961	298272
857	293298	892	295036	927	296707	962	298317
858	293348	893	295085	928	296754	963	298362
859	293399	894	295133	929	296801	964	298407
860	293449	895	295182	930	296848	965	298452
861	293500	896	295230	931	296894	966	298497
862	293550	897	295279	932	296941	967	298542
863	293601	898	295327	933	296988	968	298587
864	293651	899	295375	934	297034	969	298632
865	293701	900	295424	935	297081	970	298677
866	293751	901	295472	936	297127	971	298721
867	293801	902	295520	937	297173	972	298766
868	293851	903	295568	938	297220	973	298811
869	293901	904	295616	939	297266	974	298855
870	293951	905	295664	940	297312	975	298902
871	294001	906	295712	941	297358	976	298944
872	294051	907	295760	942	297405	977	298989
873	294101	908	295808	943	297451	978	299033
874	294151	909	295856	944	297497	979	299078
875	294200	910	295904	945	297543	980	299122

Nū.	Logar.	Nū.	Logar.	Nū.	Logar.	Nū.	Logar.
981	299156	986	299387	991	299607	996	299825
982	299211	987	299431	992	299651	997	299869
983	299255	988	299475	993	299694	998	299913
984	299299	989	299519	994	299738	999	299956
985	299343	990	299563	995	299782	1000	300000

FINIS.
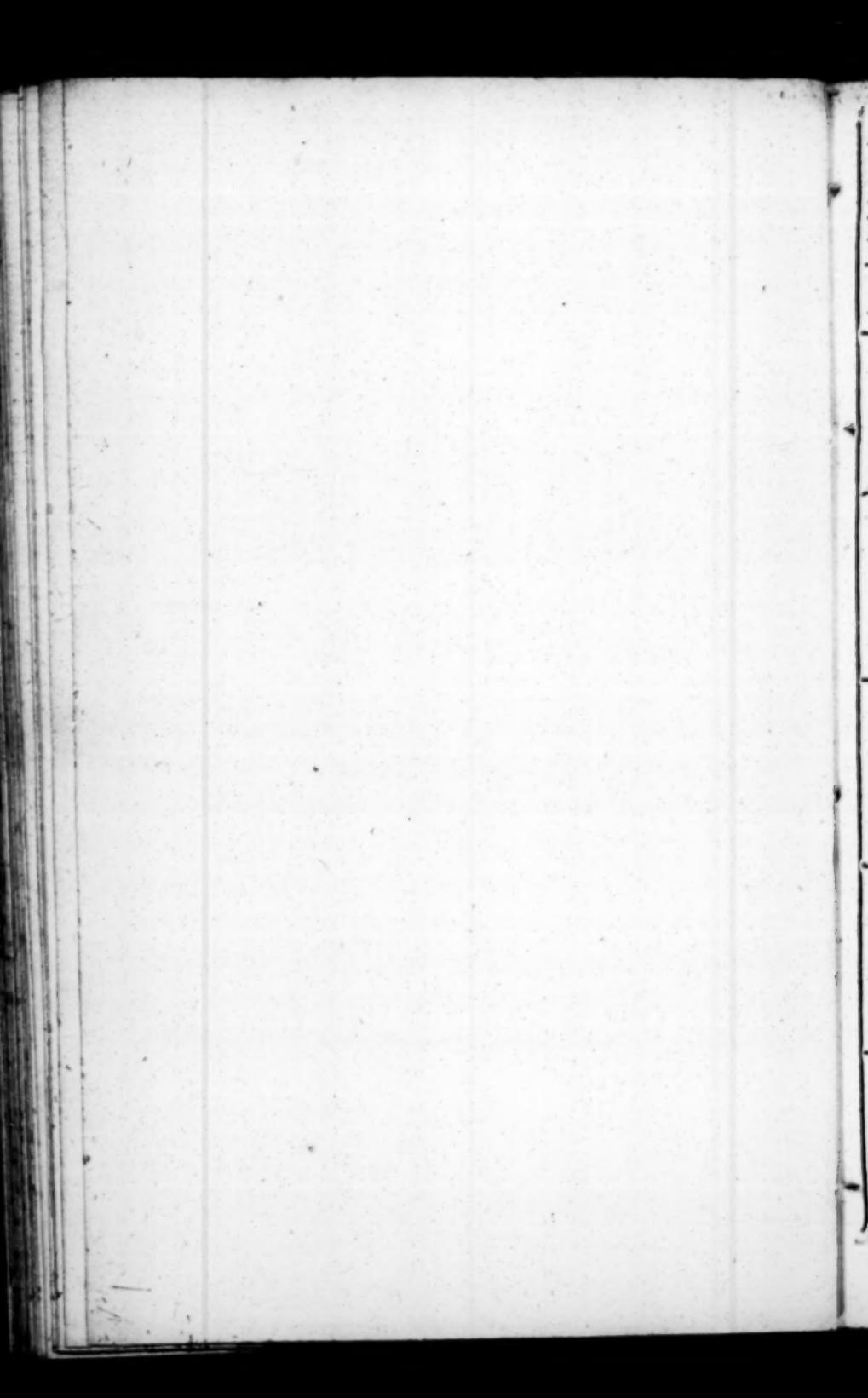
A Table of Meridionall parts.

Latit. D.M.		D. part	Lat. D.	D. part	Lat. D.	D. part	Lat. D.	D. part
0	0	0.000	5	5. 006	10	10. 051	15	15. 174
	10	0 167		5 174		10 220		15 347
	20	0 333		5 341		10 390		15 519
	30	0 500		5 508		10 559		15 692
	40	0 667		5 676		10 729		15 865
	50	0 833	6	5 843		10 898	16	16 038
1	0	1.000		6 011	11	11.068		16.212
	10	1 167		6 179		11 238		16 385
	20	1 333		6 346		11 408		16 559
	30	1 500		6 514		11 578		16 733
	40	1 667		6 682		11 748		16 905
	50	1 833	7	6 849		11 918	17	17.081
2	0	2.000		7.017	12	12.089		17 255
	10	2 167		7 186		12 259		17 4 9
	20	2 334		7 353		12 429		17 604
	30	2 501		7 521		12 600		17 778
	40	2 668		7 690		12 771		17 953
	50	2 834	8	7 858		12 942	18	18. 128
3	0	3. 001		8.026	13	13.113		18 303
	10	3 169		8 195		13 284		18 478
	20	3 335		8 363		13 455		18 654
	30	3 502		8 531		13 627		18 830
	40	3 669		8 700		13 798		19. 005
	50	3 836	9	8 868		13 969	19	19 181
4	0	4.003		9.037	14	14 141		19 358
	10	4 171		9 206		14 313		19 535
	20	4 337		9 375		14 485		19 710
	30	4 505		9 544		14 657		19 887
	40	4 672		9 713		14 829		20. 065
	50	4 839	10	9 882	15	14 031	20	20 241
5	0	5.006		10 051		15. 174		20 419

A

A Table of Meridionall parts.

Latit. D.M.		D.part	Lat D.	D.part	Lat D.	D.part	Lat D.	D.part
20	0	20. 419	25	25. 833	30	31. 472	35	37. 404
	10	20 596		26 017		31 664		37 607
	20	20 774		26 200		31 857		37 811
	30	20 952		26 386		32 051		38 016
	40	21 130		26 570		32 244		38 221
	50	21 308	26	26 755		32 438	36	38 426
21	0	21 486		26 941	31	32 633		38 632
	10	21 665		27 126		33 827		38 838
	20	21 844		27 311		33 022		39 044
	30	22 023		27 498		33 218		39 252
	40	22 202		27 685		33 413		39 460
	50	22 381	27	27 871	32	33 609	37	39 668
22	0	22 561		28 058		33 805		39 876
	10	22 741		28 245		34 002		40 085
	20	22 921		28 432		34 199		40 294
	30	23 101		28 620		34 397		40 504
	40	23 282		28 809		34 595		40 714
	50	23 462	28	28 997	33	34 792	38	40 925
23	0	23 643		29 185		34 991		41 136
	10	23 824		29 374		35 190		41 348
	20	24 006		29 563		35 389		41 560
	30	24 188		29 753		35 589		41 773
	40	24 369		29 943		35 789		41 986
	50	24 551	29	30 133	34	35 990	39	42 200
24	0	24 734		30 323		36 190		42 414
	10	24 916		30 514		36 391		42 629
	20	25 099		30 705		36 593		42 844
	30	25 282		30 896		36 795		43 060
	40	25 465		31 088		36 997		43 276
	50	25 648	30	31 279	35	37 200	40	43 493
25	0	25 833		31 472		37 404		43 710

Latit. D.M.	D. part	Lat. D.	D. part	Lat. D.	D. part	Lat. D.	D. part
	43. 710		50. 497		57. 905		66. 129
40 0	43 928	45	50 733	50	58 165	55	66 420
10	44 146		50 970		58 425		66 712
20	44 365		51 207		58 987		87 006
30	44 584		51 445		58 949		67 301
40	44 804		51 684		59 212		67 597
50	45 025		51 924		59 477		67 894
41 0	45 246	46	52 164	51	59 743	56	68 193
10	45 467		52 405		60 008		68 493
20	45 689		52 647		60 276		68 794
30	45 912		52 889		60 544		69 097
40	46 136		53 132		60 813		69 401
50	46 360		53 376		61 083		69 706
42 0	46 585	47	53 621	52	61 354	57	70 016
10	46 810		53 867		61 626		70 321
20	47 036		54 113		61 900		70 630
30	47 262		54 360		62 174		70 941
40	47 489		54 608		62 449		71 253
50	47 717		54 856		62 726		71 567
43 0	47 945	48	55 106	53	63 004	58	71 883
10	48 174		55 356		63 282		72 200
20	48 403		55 607		63 562		72 517
30	48 633		55 859		63 842		72 837
40	48 864		56 112		64 124		73 158
50	49 095		56 365		64. 407		73 481
44 0	49 327	49	56 620	54	64 691	59	73 805
10	49 560		56 865		64 976		74 131
20	49 793		57 131		65 262		74 459
30	50 027		57 389		65 550		74 788
40	50 262		57 646		65 839		75 118
50	50 497		57 905		66 129		75 452
45 0		50		55		60	

A 2

Latit. D.M.	D.part	Lat D.	D.part	Lat D.	D.part	Lat D.	D.part
60 0	75.451	65	86. 307	70	99. 42	75	116. 16
10	75.785		86.702		99. 91		116.81
20	76 121		87 100		100 41		117. 46
30	76 459		87 501		100. 90		118 12
40	76.798		87. 904		101 40		118. 79
50	77 139	66	88 309		101. 91	76	119. 47
61 0	77 482		88.718	71	102 42		120 15
10	77. 826		89 129		102. 93		120. 85
20	78 173		89 543		103 45		121. 55
30	78 521		89. 919		103. 97		122 26
40	78. 871		90 378		104. 50		122. 97
50	79 223	67	90. 831	72	105 03	77	123. 70
62 0	79 577		91 226		105.57		124. 44
10	79.934		91. 654		106 11		125 18
20	80 291		92 084		106. 66		125. 94
30	80.651		92 518		107 21		126. 70
40	81 013		92.955		107. 77		127. 48
50	81 377	68	93 395	73	108 33	78	128. 16
63 0	81. 743		93. 839		108. 90		129 06
10	82 111		94 285		109 47		129. 86
20	82 481		94. 734		110 05		130. 68
30	82.854		95 188		110. 63		131. 51
40	83 228		95. 644		111 22		132. 35
50	83 605	69	96 103	74	111. 82	79	133. 21
64 0	83. 984		96. 567		112. 42		134 07
10	84 365		97 034		113 02		134 95
20	84. 749		97 504		113. 64		135. 85
30	85 135		97. 978		114 26		136. 75
40	85 523		98 456		114. 88		137. 68
50	85. 913	70	98. 936	75	115. 52	80	138. 61
65 0	86 307		99 422		116 16		139. 56

Days	Januar. South.	Febru. South.	March South.	April North	May North	June North
1	21 45	13 50	3 29	8 32	18 3	23 11
2	21 35	13 30	3. 5	8 54	18 17	23 15
3	21 25	13. 9	2 41	9 15	18 32	23 18
4	21 14	12 49	2. 17	9 37	18 47	23 20
5	21. 3	12 28	1 54	9 58	19 1	23 24
6	20 52	12. 8	1 30	10 20	19 15	23 26
7	20 40	11 47	1. 6	10 41	19 29	23 28
8	20 27	11 26	0 43	11 2	19 42	23 29
9	20 14	11. 4	0 19	11 23	19 55	23 30
10	20. 1	10 42	N. 0 4	11 43	20 7	23 31
11	19 48	10. 20	0 28	12 3	20 20	23 31
12	19 34	9 58	0 52	12 24	20 31	23 31
13	19 20	9 36	1 16	12 44	20 43	23 31
14	19. 5	9. 14	1 39	13 3	20 54	23 30
15	18 50	8 52	2 3	13 23	21 5	23 28
16	18 35	8 29	2 26	13 42	21 11	23 26
17	18 20	8. 7	2 50	14 1	21 26	23 23
18	18. 4	7 44	3 13	14 20	21 35	23 20
19	17 48	7. 21	3 37	14 39	21 45	23 17
20	17 31	6 58	4 0	14 57	21 54	23 13
21	17. 14	6 35	4 23	15 15	22 2	23 9
22	16 57	6. 12	4 46	15 33	22 10	23 5
23	16 39	5 48	5 9	15 51	22 18	23 1
24	16 21	5 26	5 32	16 8	22 25	22 55
25	16. 3	5. 2	5 55	16 25	22 33	22 50
26	15 45	4 39	6 18	16 42	22 39	22 44
27	15 27	4. 16	6 41	16 59	22 46	22 38
28	15. 8	3 52	7 3	17 15	22 52	22 31
29	14 49		7 25	17 31	22 57	22 24
30	14 29		7 48	17 47	23 2	22 16
31	14 10		8 10		23 7	

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Suns Declination, 1641. 1645. 1649. 1654.

Days	July North		August North		Septem North		Octob South		Novem South		Decem South	
1	22	7	15	14	4	26	7	12	17	37	23	7
2	21	59	14	56	4	3	7	34	17	54	23	12
3	21	51	14	37	3	40	7	57	18	10	23	16
4	21	42	14	19	3	17	8	20	18	26	23	20
5	21	32	14	0	2	54	8	42	18	41	23	23
6	21	22	13	41	2	31	9	4	18	56	23	25
7	21	12	13	22	2	8	9	26	19	11	23	27
8	21	2	13	3	1	45	9	48	19	25	23	29
9	20	51	12	43	1	21	10	10	19	39	23	30
10	20	40	12	23	0	58	10	32	19	53	23	31
11	20	28	12	3	0	35	10	53	20	6	23	31
12	20	16	11	43	0	11	11	15	20	19	23	31
13	20	4	11	23	S. 0	12	11	36	20	32	23	30
14	19	52	11	2	0	36	11	57	20	44	23	29
15	19	39	10	41	1	0	12	18	20	56	23	27
16	19	26	10	20	1	24	12	39	21	7	23	25
17	19	12	9	59	1	47	12	59	21	18	23	22
18	18	58	9	38	2	11	13	19	21	29	23	19
19	18	44	9	17	2	34	13	39	21	39	23	16
20	18	29	8	55	2	58	13	59	21	49	23	12
21	18	14	8	33	3	21	14	19	21	58	23	7
22	17	59	8	12	3	44	14	38	22	7	23	3
23	17	44	7	50	4	7	14	57	22	15	22	57
24	17	29	7	28	4	31	15	16	22	23	22	51
25	17	13	7	5	4	54	15	35	22	31	22	45
26	16	57	6	43	5	17	15	53	22	38	22	38
27	16	40	6	21	5	41	16	11	22	45	22	31
28	16	23	5	58	6	3	16	29	22	51	22	23
29	16	6	5	35	6	26	16	46	22	57	22	15
30	15	49	5	13	6	49	17	4	23	2	22	7
31	15	32	4	50			17	21			22	58

Dayes	Januar. South.		Februa. South.		March. South.		April. North		May North		June. North	
1	21	47	13	54	3	34	8	27	17	59	23	10
2	21	37	13	34	3	11	8	48	18	14	23	14
3	21	27	13	14	2	47	9	10	18	29	23	18
4	21	17	12	54	2	23	9	32	18	43	23	21
5	21	6	12	34	2	0	9	53	18	58	23	24
6	20	54	12	13	1	36	10	14	19	12	23	26
7	20	42	11	52	1	12	10	36	19	25	23	28
8	20	30	11	31	0	49	10	47	19	38	23	29
9	20	17	11	9	0	25	11	18	19	51	23	31
10	20	4	10	48	0	1	11	38	20	4	23	30
11	19	51	10	26	N. 0	22	11	58	20	17	23	31
12	19	37	10	4	0	46	12	18	20	29	23	31
13	19	23	9	42	1	10	12	38	20	40	23	31
14	19	9	9	19	1	34	12	58	20	51	23	30
15	18	54	8	57	1	57	13	18	21	2	23	28
16	18	39	8	35	2	20	13	37	21	13	23	26
17	18	23	8	12	2	44	13	56	21	23	23	23
18	18	7	7	50	3	7	14	15	21	33	23	21
19	17	51	7	27	3	31	14	34	21	42	23	18
20	17	35	7	4	3	54	14	53	21	51	23	15
21	17	18	6	41	4	17	15	11	22	0	23	11
22	17	1	6	18	4	41	15	29	22	8	23	7
23	16	43	5	55	5	3	15	47	22	16	23	2
24	16	26	5	32	5	26	16	4	22	24	22	57
25	15	8	5	8	5	49	16	21	22	31	22	51
26	15	49	4	45	6	12	16	38	22	38	22	45
27	15	31	4	21	6	35	16	55	22	44	22	39
28	15	12	3	58	6	58	17	11	22	50	22	33
29	14	53			7	20	17	27	22	56	22	26
30	14	34			7	42	17	43	23	1	22	18
31	14	14			8	4			23	6		

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Days	July. North		August. North		Septem. North		Octob. South		Novem. South		Decem. South	
1	22	9	15	18	4	32	7	7	17	33	23	6
2	22	1	15	0	4	9	7	29	17	50	23	11
3	21	53	14	42	3	46	7	52	18	6	23	15
4	21	44	14	24	3	23	8	14	18	21	23	19
5	21	35	14	5	2	59	8	37	18	37	23	22
6	21	25	13	46	2	36	8	59	18	52	23	25
7	21	15	13	26	2	13	9	21	19	7	23	28
8	21	4	13	7	1	50	9	43	19	22	23	29
9	20	54	12	48	1	26	10	5	19	36	23	30
10	20	43	12	28	1	3	10	27	19	50	23	31
11	20	31	12	8	0	39	10	48	20	3	23	31
12	20	19	11	48	0	16	11	9	20	16	23	31
13	20	7	11	28	S. 0	6	11	31	20	19	23	31
14	19	55	11	7	0	31	11	52	20	41	23	30
15	19	42	10	47	0	54	12	13	20	53	23	28
16	19	29	10	26	1	18	12	33	21	5	23	26
17	19	15	10	5	1	41	12	53	21	16	23	23
18	19	2	9	43	2	5	13	13	21	27	23	20
19	18	48	9	22	2	28	13	34	21	37	23	17
20	18	33	9	1	2	52	13	54	21	47	23	13
21	18	18	8	39	3	15	14	14	21	56	23	8
22	18	4	8	17	3	39	14	33	22	5	23	3
23	17	48	7	55	4	2	14	52	22	14	22	58
24	17	33	7	33	4	25	15	11	22	22	22	53
25	17	17	7	11	4	48	15	30	22	30	22	47
26	17	1	6	49	5	12	15	48	22	37	22	40
27	16	44	6	26	5	35	16	6	22	44	22	33
28	16	27	6	4	5	58	16	24	22	50	22	25
29	16	10	5	41	6	21	16	42	22	56	22	17
30	15	53	5	18	6	44	16	59	23	1	22	9
31	15	36	4	56			17	16			22	0

Suns Declination, 1643. 1647. 1651. 1655.

Days	January South		February South		March South		April North		May North		June North	
1	21	50	14	0	3	40	8	21	17	55	23	9
2	21	40	13	40	3	17	8	43	18	10	23	13
3	21	30	13	20	2	53	9	5	18	25	23	17
4	21	19	12	59	2	29	9	26	18	40	23	20
5	21	8	12	39	2	6	9	48	18	54	23	23
6	20	57	12	18	1	42	10	9	19	8	23	25
7	20	45	11	57	1	18	10	30	19	22	23	27
8	20	33	11	36	0	54	10	51	19	35	23	29
9	20	21	11	14	0	31	11	12	19	48	23	30
10	20	8	10	53	0	8	11	33	20	1	23	31
11	19	55	10	31	N 0	15	11	53	20	14	23	31
12	19	41	10	9	0	39	12	14	20	26	23	31
13	19	27	9	47	1	4	12	34	20	37	23	31
14	19	13	9	25	1	27	12	53	20	49	23	30
15	18	58	9	3	1	51	13	12	21	0	23	29
16	18	43	8	40	2	14	13	32	21	10	23	27
17	18	27	8	18	2	38	13	52	21	20	23	24
18	18	11	7	55	3	2	14	11	21	30	23	21
19	17	55	7	33	3	25	14	29	21	42	23	18
20	17	39	7	10	3	48	14	48	21	49	23	15
21	17	22	6	47	4	12	15	6	21	58	23	12
22	17	5	6	24	4	35	15	24	22	6	23	8
23	16	48	6	1	4	58	15	42	22	14	23	3
24	16	30	5	37	5	21	16	0	22	22	22	58
25	16	12	5	14	5	44	16	17	22	29	22	53
26	15	54	5	51	6	7	16	34	22	36	22	47
27	15	36	4	27	6	29	16	51	22	43	22	41
28	15	17	4	3	6	52	17	7	22	49	22	34
29	14	58			7	14	17	23	22	54	22	27
30	14	39			7	37	17	39	23	0	22	20
31	14	19			7	59			23	5		

Days	July. North		August. North		Septem North		Octob South.		Novem South.		Decem South.	
1	22	11	15	22	4	37	7	1	17	29	23	5
2	22	3	15	4	4	14	7	23	17	46	23	10
3	21	55	14	46	3	51	7	46	18	2	23	14
4	21	46	14	28	3	28	8	9	18	18	23	18
5	21	37	14	9	3	5	8	31	18	34	23	21
6	21	27	13	50	2	42	8	53	18	49	23	24
7	21	17	13	31	2	19	9	15	19	4	23	26
8	21	7	13	11	1	55	9	37	19	18	23	28
9	20	56	12	52	1	32	9	59	19	32	23	30
10	20	45	12	33	1	8	10	21	19	46	23	31
11	20	34	12	13	0	45	10	43	20	0	23	31
12	20	22	11	53	0	22	11	3	20	13	23	31
13	20	10	11	33	S. 0	1	11	25	20	26	23	31
14	19	58	11	12	0	24	11	46	20	38	23	30
15	19	45	10	50	0	48	12	7	20	50	23	28
16	19	32	10	30	1	12	12	28	21	2	23	26
17	19	18	10	9	1	36	12	49	21	13	23	23
18	19	5	9	48	1	59	13	9	21	24	23	20
19	18	51	9	26	2	23	13	29	21	34	23	17
20	18	36	9	5	2	46	13	49	21	44	23	13
21	18	22	8	43	3	9	14	8	21	54	23	9
22	18	7	8	22	3	33	14	28	22	3	23	5
23	17	52	8	0	3	56	14	48	22	12	23	0
24	17	36	7	37	4	19	15	7	22	20	22	54
25	17	20	7	15	4	43	15	25	22	28	22	48
26	17	4	6	53	5	6	15	44	22	36	22	41
27	16	48	6	31	5	29	16	2	22	42	22	34
28	16	31	6	8	5	52	16	20	22	48	22	27
29	16	14	5	45	6	15	16	38	22	54	22	19
30	15	57	5	23	6	38	16	55	23	0	22	11
31	15	40	5	0			17	12			22	2

Suns Declination, 1644. 1648. 1652. 1656.

Days	January South		February South		March South		April North		May North		June North	
1	21	52	14	4	3	22	8	38	18	6	23	12
2	21	43	13	44	2	59	8	59	18	21	23	16
3	21	33	13	24	2	35	9	21	18	36	23	19
4	21	22	13	4	2	11	9	43	18	51	23	22
5	21	11	12	44	1	48	10	4	19	5	23	25
6	21	0	12	23	1	24	10	25	19	19	23	27
7	20	48	12	2	1	0	10	46	19	32	23	29
8	20	36	11	41	0	37	11	7	19	45	23	30
9	20	24	11	20	0	14	11	23	19	58	23	31
10	20	11	10	58	N 0	10	11	48	20	11	23	31
11	19	58	10	36	0	33	12	9	20	23	23	31
12	19	44	10	14	0	57	12	29	20	35	23	31
13	19	30	9	53	1	22	12	49	20	46	23	30
14	19	16	9	31	1	45	13	8	20	57	23	29
15	19	1	9	8	2	9	13	28	21	8	23	27
16	18	46	8	46	2	32	13	47	21	18	23	25
17	18	31	8	23	2	56	14	6	21	28	23	23
18	18	15	8	1	3	19	14	25	21	38	23	19
19	17	59	7	31	3	43	14	43	21	47	23	16
20	17	43	7	15	4	6	15	2	21	56	23	13
21	17	26	6	52	4	29	15	20	22	4	23	9
22	17	9	6	29	4	52	15	38	22	13	23	4
23	16	52	6	6	5	15	15	55	22	21	22	59
24	16	35	5	43	5	38	16	13	22	28	22	54
25	16	17	5	20	6	1	16	30	22	35	22	48
26	15	58	4	56	6	24	16	47	22	41	22	42
27	15	40	4	33	6	46	17	3	22	47	22	36
28	15	22	4	10	7	9	17	19	22	53	22	29
29	15	3	3	46	7	31	17	35	22	59	22	22
30	14	43			7	53	17	51	23	4	22	14
31	14	24			8	16			23	8		

Suns Declination, 1644. 1648. 1652. 1656.

Days	July North		August North		Septem North		Octob South		Novem South		Decem South	
1	22	5	15	8	4	20	7	18	17	42	23	9
2	21	57	14	50	3	57	7	41	17	58	23	13
3	21	48	14	31	3	34	8	3	18	14	23	17
4	21	39	14	13	3	11	8	25	18	30	23	20
5	21	29	13	54	2	48	8	48	18	45	23	23
6	21	19	13	35	2	25	9	10	19	0	23	26
7	21	9	13	16	2	1	9	32	19	15	23	28
8	20	58	12	56	1	38	9	53	19	29	23	30
9	20	47	12	37	1	14	10	16	19	43	23	31
10	20	36	12	17	0	51	10	37	19	57	23	31
11	20	24	11	57	0	28	10	59	20	10	23	31
12	20	12	11	37	0	5	11	20	20	23	23	31
13	20	0	11	16	S.0	18	11	41	20	35	23	30
14	19	47	10	55	0	42	12	2	20	47	23	29
15	19	34	10	35	1	6	12	23	20	59	23	27
16	19	21	10	14	1	30	12	44	21	10	23	24
17	19	7	9	53	1	53	13	4	21	20	23	21
18	18	53	9	31	2	17	13	24	21	31	23	18
19	18	39	9	10	2	40	13	44	21	41	23	14
20	18	25	8	48	3	4	14	4	21	51	23	10
21	18	10	8	27	3	27	14	24	22	0	23	6
22	17	54	8	5	3	50	14	43	22	9	23	1
23	17	39	7	43	4	13	15	2	22	17	22	55
24	17	23	7	21	4	37	15	21	22	25	22	49
25	17	7	6	59	5	0	15	39	22	33	22	43
26	16	51	6	36	5	23	15	57	22	40	22	36
27	16	35	6	14	5	46	16	16	22	47	22	29
28	16	18	5	51	6	9	16	33	22	53	22	21
29	16	1	5	29	6	32	16	51	22	59	22	13
30	15	43	5	6	6	55	17	8	23	4	22	4
31	15	25	4	43			17	25			21	55

Dates	Januar.		Februar		March.		April.		May.		June.	
	H.	M	H.	M	H.	M	H.	M	H.	M	H.	M
1	19	32	21	41	23	27	1	20	3	13	5	18
2	19	37	21	45	23	31	1	23	3	17	5	22
3	19	41	21	49	23	34	1	27	3	21	5	26
4	19	45	21	53	23	38	1	31	3	24	5	30
5	19	50	21	57	23	42	1	34	3	28	5	34
6	19	54	22	0	23	45	1	38	3	32	5	38
7	19	58	22	4	23	49	1	42	3	36	5	43
8	20	3	22	8	23	52	1	45	3	40	5	47
9	20	7	22	12	23	56	1	49	3	44	5	51
10	20	11	22	16	0	0	1	53	3	48	5	55
11	20	15	22	20	0	3	1	57	3	52	5	59
12	20	20	22	24	0	7	2	0	3	56	6	3
13	20	24	22	27	0	11	2	4	4	0	6	8
14	20	28	22	31	0	14	2	8	4	4	6	12
15	20	32	22	35	0	18	2	11	4	8	6	16
16	20	36	22	39	0	21	2	15	4	12	6	20
17	20	40	22	42	0	25	2	19	4	16	6	24
18	20	45	22	46	0	29	2	23	4	20	6	28
19	20	49	22	50	0	32	2	27	4	24	6	32
20	20	53	22	54	0	36	2	30	4	28	6	37
21	20	57	22	57	0	40	2	34	4	33	6	41
22	21	1	23	1	0	43	2	38	4	37	6	45
23	21	5	23	5	0	47	2	42	4	41	6	49
24	21	9	23	8	0	50	2	46	4	45	6	53
25	21	13	23	12	0	54	2	49	4	49	6	57
26	21	17	23	16	0	58	2	53	4	53	7	1
27	21	21	23	20	1	1	2	57	4	57	7	6
28	21	25	23	23	1	5	3	1	5	1	7	10
29	21	29			1	9	3	5	5	5	7	14
30	21	33			1	12	3	9	5	10	7	18
31	21	37			1	16			5	14		

Suns right Afcenfion in Houres and Minutes.

Days	July. H. M	Augnft H. M	Septem H. M	Octob. H. M	Novem. H. M	Decemb H. M
1	7 22	9 24	11 18	13 6	15 6	17 14
2	7 26	9 28	11 21	13 10	15 10	17 19
3	7 30	9 31	11 25	13 14	15 14	17 23
4	7 34	9 35	11 29	13 17	15 18	17 27
5	7 38	9 39	11 32	13 21	15 23	17 32
6	7 42	9 43	11 36	13 25	15 27	17 36
7	7 46	9 46	11 39	13 29	15 31	17 41
8	7 50	9 50	11 43	13 32	15 35	17 45
9	7 54	9 54	11 47	13 36	15 39	17 50
10	7 58	9 58	11 50	13 40	15 43	17 54
11	8 2	10 1	11 54	13 44	15 48	17 59
12	8 6	10 5	11 57	13 48	15 52	18 3
13	8 10	10 9	12 1	13 51	15 56	18 7
14	8 14	10 12	12 4	13 55	16 0	18 12
15	8 18	10 16	12 8	13 59	16 5	18 16
16	8 22	10 20	12 12	14 3	16 9	18 21
17	8 26	10 23	12 15	14 7	16 13	18 25
18	8 30	10 27	12 19	14 11	16 17	18 30
19	8 34	10 31	12 23	14 14	16 22	18 34
20	8 38	10 34	12 26	14 18	16 26	18 39
21	8 42	10 38	12 30	14 22	16 30	18 43
22	8 46	10 42	12 33	14 26	16 35	18 48
23	8 49	10 45	12 37	14 30	16 39	18 52
24	8 53	10 49	12 41	14 34	16 43	18 56
25	8 57	10 53	12 44	14 38	16 48	19 1
26	9 1	10 56	12 48	14 42	16 52	19 5
27	9 5	11 0	12 52	14 46	16 56	19 10
28	9 9	11 3	12 55	14 50	17 1	19 14
29	9 13	11 7	12 59	14 54	17 5	19 18
30	9 16	11 11	13 3	14 58	17 10	19 23
31	9 20	11 14		15 2		19 27

The names of the Starres	Declination. D.M.	Dist. from the Pole. D.M	Right Ascension. H.M.
In the breast of Cassiopeia,	54 31 N	35 29	0 20
The Pole Starre,	87 19 N	2 41	0 28
The girdle of Andromeda,	33 42 N	56 18	0 49
At the knees of Cassiopeia,	58 17 N	31 43	1 2
Whales belly,	12 7 S	77 53	1 33
The Southerly foot of Andromeda,	40 32 N	49 28	1 42
Rammes head,	21 42 N	68 18	1 46
The head of Medusa,	39 29 N	50 31	2 44
Perseus right side,	48 28 N	41 32	2 58
Bulls eye,	15 42 N	74 18	4 15
The Goate,	45 33 N	44 27	4 50
Orions left foote,	8 40 S	81 20	4 57
Orions left shoulder,	5 57 N	84 3	5 5
First in Orions girdle,	0 37 S	89 23	5 13
Second in Orions girdle,	1 28 S	88 32	5 18
Third in Orions girdle,	2 11 S	87 49	5 22
The Wagoners right shoulder	44 51 N	45 9	5 33
Orions right shoulder,	7 17 N	82 43	5 35
The bright foote of the Twinnes,	16 40 N	73 20	6 16
The great Dog,	16 12 S	73 48	6 29
The upper head of the Twins,	32 38 N	57 22	7 11
The lesse Dog,	6 9 N	83 51	7 20
The lower head of the Twinnes,	28 52 N	61 8	7 43
The brightest in Hydra,	7 4 S	82 56	9 9

The names of the Starres	Decli-nation.		Dist. from the Pole.		Right Ascension.	
	D.M.		D.M		H.M.	
Lions heart,	13	45 N	76	15	9	49
Lions backe,	22	33 N	67	27	10	54
Lions tayle,	16	39 N	73	21	11	30
The great Beares thigh,	55	47 N	34	13	11	34
The great Beares rump,	59	5 N	30	55	11	57
The first in the great Beares tayle next her rump,	58	0 N	32	0	12	37
Virgins spike,	9	10 S	80	50	13	6
The middlemost in the great Beares tayle,	56	54 N	33	6	13	9
In the end of her tayle,	51	13 N	38	47	13	33
Betweene Bootes thighes,	21	10 N	68	50	13	59
The South Balance,	14	26 S	75	34	14	31
The North Balance,	7	57 S	82	3	14	57
Scorpions heart,	25	30 S	64	30	16	7
Hercules head,	14	53 N	75	7	16	58
Serpentaries head,	12	54 N	77	6	17	18
The Dragons head,	51	37 N	38	23	17	48
The brightest in the harpe,	38	29 N	51	31	18	24
Eagles heart,	7	58 N	82	2	19	33
Swans tayle,	43	59 N	46	1	20	29
Pegasus mouth,	8	12 N	81	48	21	26
Pegasus shoulder,	13	14 N	76	46	22	46
The head of Andromeda.	27	4 N	62	56	23	49

FINIS.